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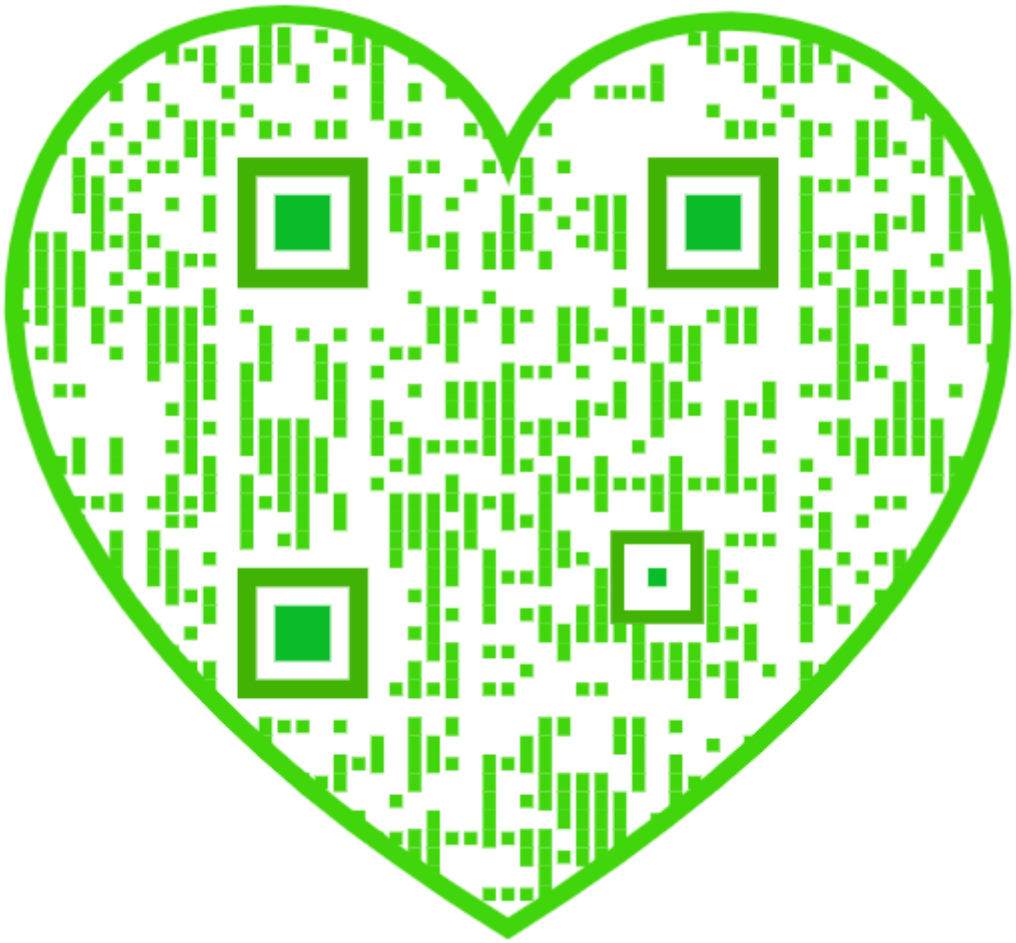
Pacific Northwest Swine Husbandry

Portland Union Stock Yards Company
North Portland, Oregon



PACIFIC NORTHWEST SWINE HUSBANDRY

Compiled by
L. R. McGEE

REVISED EDITION

Like the previous edition of the PACIFIC NORTHWEST SWINE HUSBANDRY, this little booklet is compiled with the intention of providing data for those who are new in the breeding and fattening of swine for market.

It is not by any means a complete guide, but is intended to be used as a dictionary of reference to bulletins and books that are complete and that are written by Agricultural and Swine Husbandry experts.

Swine production is not only increasing rapidly in the Pacific Northwest alone in numbers, but is also increasing in the quality of swine produced. This fact is evinced by the better dressing yield and also by the exhibits of fat swine at the annual PACIFIC INTERNATIONAL LIVE STOCK EXPOSITION.

The farmer who goes into the raising of swine for market purposes cannot but help to get good returns upon his money and time invested.

Portland Union Stock Yards Co.

North Portland, Oregon

WM. H. DAUGHTREY, President
F. J. HAGENBARTH, Vice President
O. M. PLUMMER, Secretary-Treasurer
L. R. McGEE, Assistant Secretary

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APR 27 1915

A Shady Pasture.

Foreword

We are often asked for help and advice along live-stock lines. In many cases we refer the writer to the Agricultural Experiment Stations and to other sources of authority. That the reader may have at first hand the sources of good information, we add the lists of experiment stations, books, etc., below.

AGRICULTURAL EXPERIMENT STATIONS.

Any of the following Agricultural Experiment Stations will be glad to help you with your feeding and other swine husbandry problems, if you will write them. Use the one for the State in which you live:

Oregon Agricultural College, Corvallis, Oregon.
State College of Washington, Pullman, Washington.
Idaho Agricultural Experiment Station, Moscow, Idaho.
Montana Agricultural College, Bozeman, Montana.
Utah Agricultural College, Logan, Utah.
California Agricultural Experiment Station, Davis, California.

BOOKS TO READ.

Every farmer and farm manager should have a library. Get all the Agricultural Experiment Station Reports mentioned herein, and read them. Learn how to balance the rations you feed. Take some good general live-stock papers and a good market paper also. Some good books everyone should read:

"Feeds and Feeding," Henry; "Swine," Deitrich; "The Hog Book," Dawson; "The Book of Alfalfa," Coburn; "Breeding of Farm Animals," Marshall; "Alfalfa," Joseph Wing; "Diseases of Animals," Mayo; "Forage and Fiber Crops in America," Hunt; "Swine of America," Coburn; "Productive Swine Husbandry," Day. These books and others may be obtained from the Reporter Publishing Co., North Portland, Oregon.

FARMERS' BULLETINS.

Many of the articles in this booklet refer to Farmers' Bulletins. These may be had by writing to your Congressman, asking for the number of bulletin in which you are interested.

BREEDS.

All breeds look alike to the packers, provided they are well matured and properly conformed. Neither the Duroc, Poland or Berkshire brings a premium over the other, provided the grade and finishing are the same. That being the case, raise the breed that your fancy dictates.

Breeds in general differ little in economy of production. Certain breeds have a reputation for great prolificacy, but there are strains within the most prolific breeds that are no more prolific than the average of some breeds that are not favored with such a reputation.

All breeds should have certain characteristics, such as conformation, quality, proficiency, etc.

CONFORMATION.

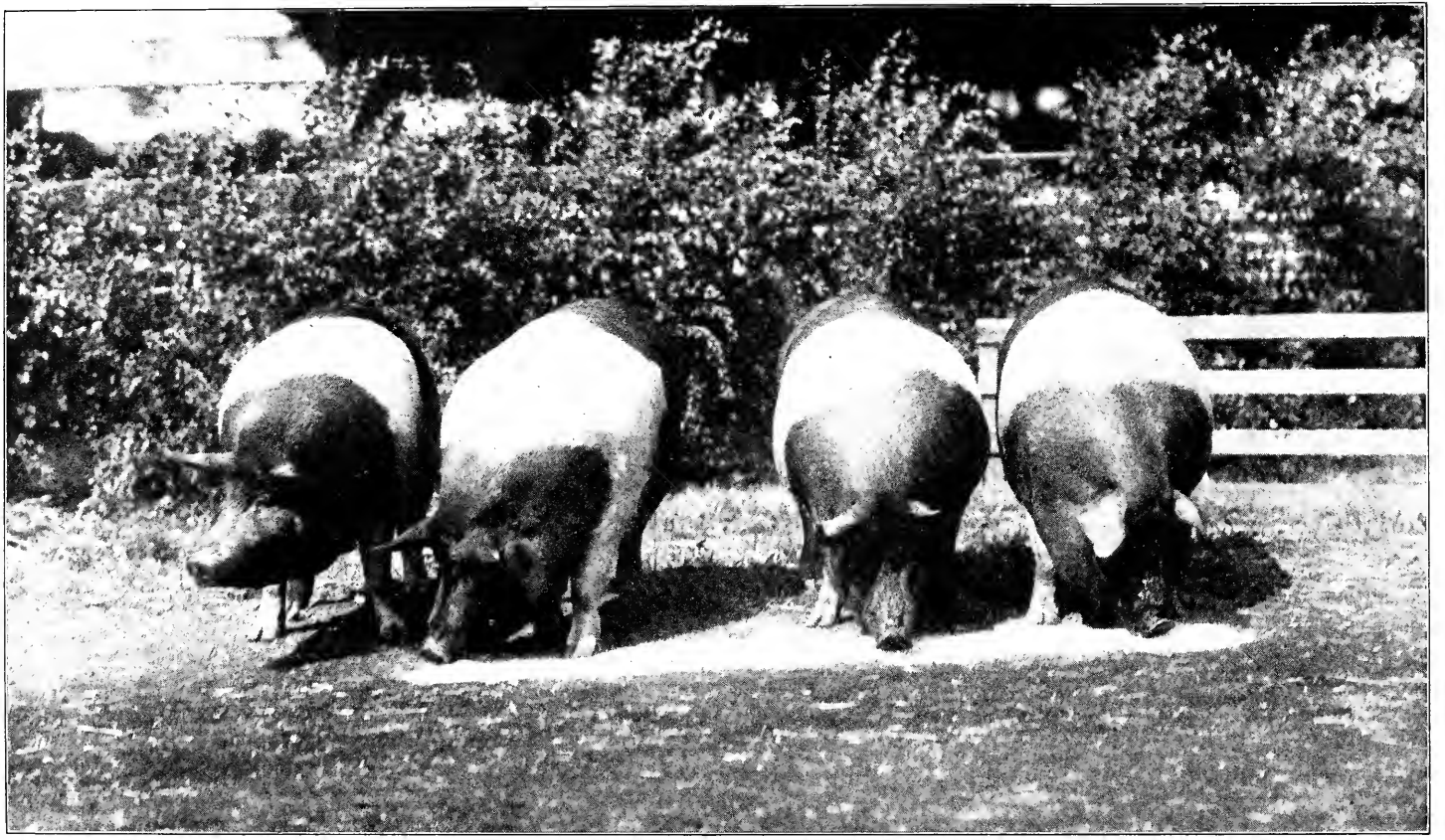
A perfect hog should, when viewed from the back, front or sides, resemble a parallelogram as nearly as possible. Back, belly and sides should be straight and parallel, with ribs well sprung, head short and face dished, wide between eyes, full jowl, rounded at the sides, ears thin and soft and neck short and arched. Legs wide apart to give plenty of room for lungs and heart. Avoid a swaying back and see that the hams are wide as the shoulders, and drop square to the tail, well rounded to the stifle. Must stand well on toes and not down on claws. Above all, remember that the packer doesn't buy daylight and the less of that seen between the hog's belly and the ground the better. Color does not bring price, either; does not matter whether black, red or white, conformation is what counts.

PROLIFICACY.

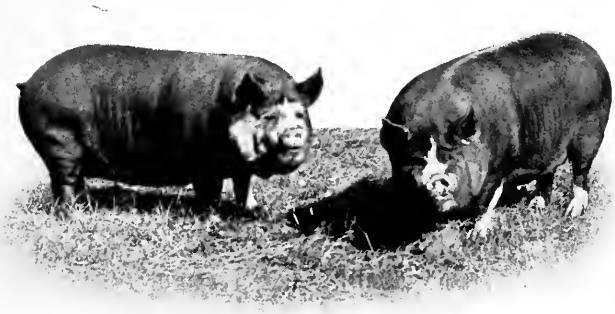
One of the most important things for the hog raiser is to select his brood sows with their prolificacy in view. If a sow will continually farrow but 4 or 5 pigs it is evident that it is not nearly so profitable as the one that will farrow 8 or 10 pigs. Prolificacy besides being a breed characteristic may be greatly controlled by proper feeding and care of the sow.

QUALITY.

The term "quality" in a hog is considered in the same sense as quality in a piece of cloth. If the cloth is coarse and made of poor material the quality is poor. The hog is considered to be of good or poor quality in the same sense. If the appearance of the hog is that of smoothness and refinement rather than of coarseness and ungainliness, the quality is good. The hair should be fine, the skin smooth and fine in texture, the bone as indicated in the snout, head and legs should be smooth and not too large. The flesh, too, should be fine in grain and show considerable firmness with elasticity which indicates a large proportion of lean meat. The best hog for the farmer should show well developed proportion, size, prolificacy and quality.



Prize Winning Hampshires.



Berkshires.

Breeds

BERKSHIRES.

Originated in England; considered a medium between the lard and bacon hog. Long body, strong, well arched back, even width and good depth of body, broad heavy hams, light, smooth, well-set shoulders, excellent feet and legs, snout short and coarse. Ears upright, color black; may have six white points.—Record Association; American Berkshire Association, Frank D. Springer, Secretary, Springfield, Illinois.

CHESTER WHITES, (O. I. C.)

An American white hog. Size varies; fat or lard type; body blocky, hams heavy, shoulders smooth, broad back, stands well upon its feet. Snout medium, medium dish, tapering, ears fancy.—Record Associations; Chester White Record Association, Rochester, Indiana, F. F. Moore, Secretary.

DUROC JERSEYS.

American origin. Color red; short heavy body, legs medium, lard type, snout medium, slightly dished, ears fancy, back broad and well arched, thick sides and belly, very hardy and prolific. Grow rapidly.—Record Associations: American Duroc Jersey Swine Breeders Association, T. B. Pearson, Secretary, Thorntown, Ind.; National Duroc Jersey Swine Breeders Association, J. R. Pfander, Secretary, Peoria, Ill.

Chester Whites (O. I. C.)

HAMPSHIRES.

(Thin Rind.)

Of English origin. Often called a dual-purpose hog—that is, both a lard and bacon type. Characterized as follows: Thrifty hardy hog with good constitution, thin skin and of good quality, rapid grower, good feeder, black in color with a white belt running around the front part of the body, including the shoulders and front legs. In prolificacy they stand high.—Record Association: American Hampshire (Thin Rind) Swine Record Association, E. C. Stone, Secretary, Armstrong, Illinois.

POLAND CHINAS.

Originated in Ohio between 1830 and 1850. Belongs to the lard class. Originally the breed was characterized by its size. Its color was spotted black and white. As developments proceeded the color was changed to solid black with six white points. It is fairly prolific. Is principally a fat-producing hog, snout medium in length, quite straight and tapering, ears two-thirds upright and one-third drooping, neck short, back broad, sides full and deep, body smooth throughout. Small, medium and large types have been developed in this breed. The large type will fatten well at 250 pounds or over, medium type around 200 pounds, and the small type at any weight from 150 to 250 pounds.—Record Associations: American Poland China Record Association, W. M. McFadden, Secretary, Union Stock Yards, Chicago. Ill.; National Poland China Record Association, A. M. Brown, Secretary, Winchester, Ind.; Standard Poland China Record Company, George F. Woodworth, Secretary, Maryville, Mo.

THE TAMWORTH.

Originated in Ireland. Bacon type. Sometimes reach an extreme weight. Have long legs, long pointed snout, deep sides, ears usually upright, color red.—Record Association: American Tamworth Swine Record Association, E. N. Ball, Secretary, East Lansing, Mich.

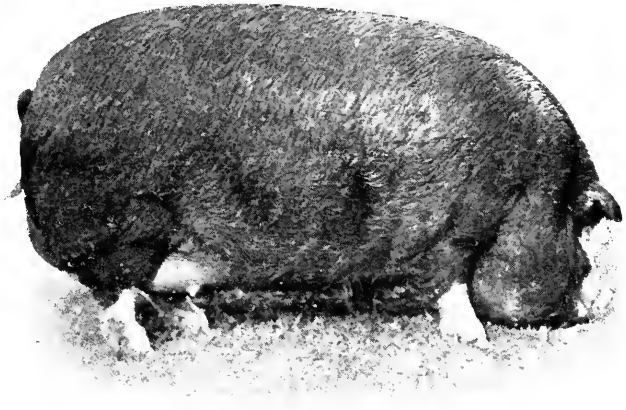
Poland Chinas.

THE YORKSHIRE.

The Yorkshire is not a very popular hog in this part of the United States, but is quite popular in Canada as a bacon hog. This breed is white in color. They have thick bellies, well mixed meat and long sides, points that curers of bacon value highly.—Record Association: American Yorkshire Club, Harvey S. Crum, Secretary, White Bear Lake, Minn.

OTHER BREEDS.

There are other breeds of swine than those mentioned in this bulletin. They are, however, not nearly so popular, and in general it is thought best that growers confine their efforts to the more popular breeds. Some of these less known breeds are the Victoria, Cheshire, Essex, Suffolk, Mule-foot, Large Black, etc.



A Profitable Sow.

In an Oregon Pasture.

Breeding and Management

It is intelligence that counts in raising pigs for market. The successful farmer is the one who thinks. He must take into consideration all the little things that go to make up "his pigships." Naturally, if he does this there is little doubt of his success. The following from Henry is to the point:

"Breed stock should live all summer in the open on uncontaminated soil, grazing on succulent pastures in order to develop bone, muscle and constitution. The grasses do not provide a satisfactory pasture for swine. Far better are the rape and the legumes—clover, alfalfa, vetch, etc. While the pig can barely subsist on grass alone, the legumes and rape will somewhat more than sustain life and so leave for producing increase all the extra good feed which may be supplied. In addition to good legume or rape pasture there should be fed a proper allowance of muscle and bone-building feeds such as wheat middlings, bran, soy beans, cow peas, linseed oil meal, tankage, dairy by-products, etc. These need not, however, constitute over one-third of the feed supplied; the remainder, carbohydrate in character and cheaper in price, should consist of corn, barley, kaffir, milo, etc. The daily concentrate allowance should be sufficient to keep the pigs thrifty and gaining, but in no case so abundant as to make them lazy and shiftless, for pigs, if heavily fed, do little foraging but lie idly in the shade. Observation will soon determine the quantity of feed which will keep pigs gaining normally while actively foraging to appease their hunger.

"Boars and brood sows of the larger breeds should reach the weight of about 250 pounds at one year of age if rightly fed and managed. The feed and care of the boar does not differ from that of the sow. Too often both are closely confined in filthy quarters away from the wholesome earth without opportunity for exercise or for gathering food on their own account. Such mismanagement weakens the constitution and is far more expensive than the simpler and more natural method of keeping all stock, from spring until fall, away from building and feed yards, out in the fields on fresh uncontaminated soil. Here a little extra feed with suitable forage and a natural life makes possible the most economical gains and the healthiest animals."—Henry; Bulletin No. 100, U. S. Department of Agriculture, Washington, D. C.; Farmers' Bulletin No. 205.

BEDDING.

Many farmers who are careful to see that their cows and heifers have plenty of dry, clean bedding every night never stop to think that the hogs require good sleeping quarters as well. In many cases no attention is given the hog house for weeks, and the result is that it becomes muddy and filthy and absolutely unfit for even a hog to sleep in.

While this is wrong from a humane standpoint, it is equally wrong from an economic point of view. Swine cannot be expected to do their best under such conditions; moreover, such places are breeding beds for disease germs. In the end the one who neglects his swine in this way pays dearly for it. Take a look at the hog house tomorrow. Clean it out thoroughly and see that it is perfectly dry. then put in a fresh supply of straw or shredded fodder.

The Yorkshire Type.

THE BOAR.

The most important factor in the herd is the boar. In all instances use a pure-bred boar. Too much emphasis cannot be laid on this. Choose him from among the best, for the best is none too good. Have him from a family entirely foreign to your own. The inexperienced had better let inbreeding alone. See that he is well conformed, full of vitality and of good disposition. Avoid a long head, long neck and long legs. See that he stands well up on his toes. Don't buy a sway back, nor one too arched; his back should be nearly straight. A little arch won't hurt, but must not be too pronounced. Don't use a 2x4 on him, for a light whip can handle any boar that has been properly trained. Keep him away from the sows until they need him. Use a crate for breeding purposes—it will save your boar's vitality. Don't put him in service too young; eight months of age is the earliest time he should be used and ten months is better. Have him get accustomed to his new home and surroundings before he is put to work.

Fifteen to twenty sows are enough for the young boar to breed the first year. Use a good boar as long as possible to do so to an advantage.

Do not keep the boar with the herd—keep him in a separate pen or pasture near the balance of the herd.

If you wish good strong litters conserve his vitality.

BROOD SOWS.

In selecting from your herds the gilts you expect to make brood sows, of remember, as in the boar, the best is none too good. Select them from large litters, expecting them to have inherited prolificacy. Choose them for their conformation also. See that they are good feeders and they will more likely be good milkers. After the first farrowing watch them for their mothering qualities; a sow may

produce large litters but on account of the fact that she is a poor mother, will raise but few pigs. Such a sow should be immediately promoted to the feed lots. Generally speaking, a long, rangy sow is a better brood sow than the short, chunky one. In mating a sow, choose a boar of similar type; don't cross types or breeds if you expect uniformity in the offspring, although weak characteristics may be eradicated by using boars of opposite strong characteristics for several generations. A gilt should not be bred until it is at least nine months old. At one year is better; that is, young enough, and by that time the gilt will have obtained growth and strength enough to carry her through the first litter. In western Oregon and Washington, two litters a year can be depended on. Keep good brood sows as long as they continue to give good results. Remember that a well proven, good brood sow of any age within reason is worth more than the unproved gilt. Linseed oil meal is a good laxative feed to give at farrowing time.

THE BEST WAY.

After they are one year of age all boars should have their tusks removed at least twice a year. This may be done quickly and effectively with a pair of strong nippers or sharp pinchers similar to those used by a blacksmith. It is both cruel and unnecessary to knock out the tusks with a cold chisel.

After breeding let the sow continue with other animals on pasture for two months; then put her with the other pregnant sows and feed for bone and muscle. Keep her in good form, but not too fat. Bran, shorts, ground oats and peas and a little wheat or barley should be fed. Also see that she has good, green pasture to run on. Two weeks before farrowing time put her in farrowing pen so that she will get acquainted and become contented with her new quarters. Have liberal supply of salt and ashes handy for her, which will prevent her from acquiring desire for animal food and keep her from eating her pigs. See that she has plenty of fresh water. After farrowing she should have nothing but water and a little thin slop for the first day. After that feed lightly for several days. After a week begin to increase feed as fast as she will eat, with relish, milk-making foods. It takes plenty of sow's milk to make healthy, growthy pigs. During time the pigs are with sow give plenty of green feed.

CASTRATING.

Castrating should be done early. Do not wait until the risk is too great. The older the animal the more difficult to handle and the greater the loss of blood and vitality. The young pig that is castrated when from four to six weeks old loses but little blood and continues to nurse, scarcely noticing the operation. After castration cleanse the wound with a three per cent solution of some coal tar preparation. Keep the pigs away from manure piles or stagnant pools.

CROSS-BREEDING.

Cross-breeding consists of mating pure-bred animals of different breeds. In some cases this has proved a success, the offspring being rapid and economic pork producers. There are several objections to this practice. Cross-breeding cannot be successfully carried on beyond the first generation and the breeder has no chance for selection to improve his herd. He cannot raise any of his own breeding animals and has to buy an entirely new herd every few years. Again, because of the prices demanded for first-class stock, such a breeder will not get as high-grade animals as he might have could he select the tops from his own breeding. As a rule, cross-breeding is not as successful nor as satisfactory as straight-breeding or grading.—Montana Agricultural College Experiment Station, Circular No. 13.

GESTATION PERIOD.

One of the important things for a farmer to know is when a sow is due to farrow. Young sows generally carry their pigs from 100 to 108 days. Old sows from 112 to 115 days. Age and condition being taken into consideration, the period averages 112 days. Periods of heat recur at intervals of twenty-one days

The following table will be found convenient:

To find the date when a sow is due to farrow it is necessary to count 16 weeks from the day when she was served. This calculation may be avoided by the use of this table. Find the date when the sow was served and the date immediately to the right is the date when she is due. For instance, if the sow was served February 1, she is due May 24; if served May 24 she is due September 13.

Feb.	May	Sept.	Jan.	Apr.	Aug.	Dec.	Mar.	July	Nov.	Feb.	June	Oct.	Jan.
1	24	13	3	25	15	5	27	17	6	26	18	8	28
2	25	14	4	26	16	6	28	18	7	27	19	9	29
3	26	15	5	27	17	7	29	19	8	28	20	10	30
4	27	16	6	28	18	8	30	20	9	Mar. 1	21	11	31
5	28	17	7	29	19	9	31	21	10	2	22	12	Feb. 1
6	29	18	8	30	20	10	Apr. 1	22	11	3	23	13	2
7	30	19	9	May 1	21	11	2	23	12	4	24	14	3
8	31	20	10	2	22	12	3	24	13	5	25	15	4
9	June 1	21	11	2	23	13	4	25	14	6	26	16	5
10	2	22	12	4	24	14	5	26	15	7	27	17	6
11	3	23	13	5	25	15	6	27	16	8	28	18	7
12	4	24	14	6	26	16	7	28	17	9	29	19	8
13	5	25	15	7	27	17	8	29	18	10	30	20	9
14	6	26	16	8	28	18	9	30	19	11	July 1	21	10
15	7	27	17	9	29	19	10	31	20	12	2	22	11
16	8	28	18	10	30	20	11	Aug. 1	21	13	3	23	12
17	9	29	19	11	31	21	12	2	22	14	4	24	13
18	10	30	20	12	Sept. 1	22	13	3	23	15	5	25	14
19	11	Oct. 1	21	13	2	23	14	4	24	16	6	26	15
20	12	2	22	14	3	24	15	5	25	17	7	27	16
21	13	3	23	15	4	25	16	6	26	18	8	28	17
22	14	4	24	16	5	26	17	7	27	19	9	29	18
23	15	5	25	17	6	27	18	8	28	20	10	30	19
24	16	6	26	18	7	28	19	9	29	21	11	31	20
25	17	7	27	19	8	29	20	10	30	22	12	Nov. 1	21
26	18	8	28	20	9	30	21	11	Dec. 1	23	13	2	22
27	19	9	29	21	10	31	22	12	2	24	14	3	23
28	20	10	30	22	11	Jan.	23	3	3	25	15	4	24
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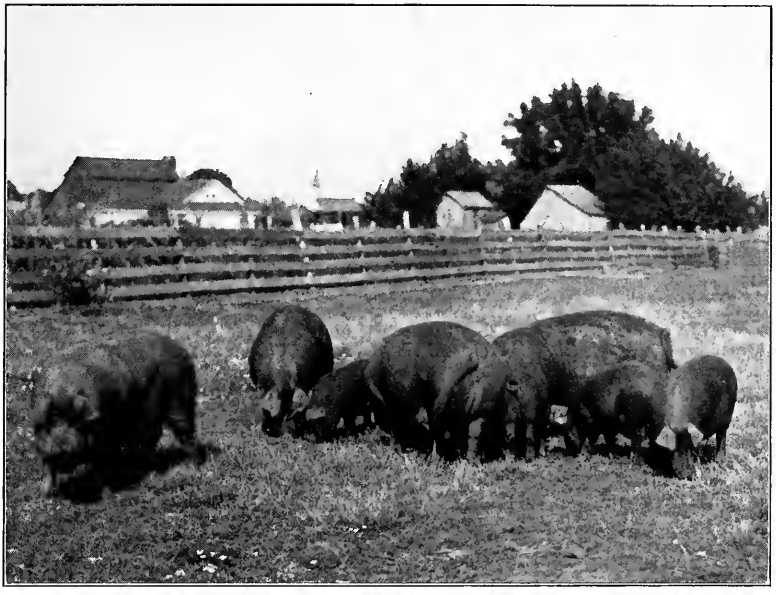


Duroc Jerseys on Pasture.

and last from one to two days. Breed sows in March or April for fall litters, November and December for spring litters. Breed as many sows as possible at the same time so that the pigs will be of uniform age. It is uniformity of size, color and age that counts on the market.

GRADING UP A HERD OF PIGS.

The disappearance of unimproved blood by the continuous use of pure bred sires is shown in the customary way in the following table:

Generations.	Sires Pct. of Pure Breed	Dams Pct. of Pure Breed	Offspring Pct. of Pure Breed
1	100	00	50
2	100	50	75
3	100	75	87.5
4	100	87.5	93.75
5	100	93.75	96.87
6	100	96.87	98.44

Hypothetically the offspring from the sixth generation will have retained on the average 1.55 per cent of unimproved blood from the original dam or the dam of no breeding. (This applies only to the average of large numbers and does not apply to individuals. Occasionally individuals may still be like the scrub dam in the original foundation stock.)

The breeder must be reminded that to produce the high-grade no other sire than a pure-bred one of the breed selected can be used. No progress will be accomplished by using a grade scrub or cross-bred sire. Nor can progress toward eventual purity of blood be made by using pure-bred sires of different breeds for each cross or occasional cross. Grading up means using a pure-bred sire for the first cross

and continuously crossing the female offspring with pure-bred sires of the breed first selected, until all impure blood has been practically bred out.

It is not necessary for the farmer who is producing pork for the market to keep a breeding herd of registered sows. A herd of high grades will answer the purpose nearly as well and they can be purchased at a much cheaper rate. The one important thing is that the breeder use a pure-bred sire. If he must start with a herd of inferior sows, by using a pure-bred sire it will only be a question of two or three years until he will have a herd of good grades.

MATURITY.

In general, hogs do not come to their maturity until they are about two years old. It follows, then, that a hog that cannot be put in good marketable condition during its early life is not a profitable hog for one to raise. Almost any good breed can be brought to this condition by intelligent feeding. Two hundred pound hogs on the market at six months of age is good business management.

PIGS—FARROWING TIME.

Attention given the sow at farrowing time is money saved. If the pigs come in cold weather, put them in a warm box until she is through farrowing and then put them with the sow immediately. If the pigs begin to scour, feed the sow less and give her plenty of strong lime water. If the pigs are old enough to drink when they scour, scalded milk with a little wheat flour and half an egg for each pig, stirred together, is good. If too young to drink, give them four or five drops of paregoric. Give them a run-way adjoining the pen with an opening about a foot square through which the pigs can get, but which will not permit the sow to get through. At three weeks of age feed them a few grains of soaked wheat on a board floor in their run-way (not in the pen for the sow to steal it from them). After they get used to eating, gradually lead up with shorts, peas or ground oats. Give them all the skim milk you can. At this age feed for bone and muscle, not fat. By giving them plenty of pasture with the above feed, at about 8 weeks the pigs will practically have weaned themselves. After weaning, the pigs must never be permitted to stop growing. Never forget that the most and cheapest pork is made in the early months of the pig's existence. Castrate young boars at about 5 weeks old.—Bulletin No. 18, Oregon Agricultural College, Corvallis. Oregon.

SHADE.

Pick your locations for hog pastures where the shade is good and there will be no necessity for the foul and unhealthy hog wallow. Hogs, contrary to an erroneous prevailing opinion, are cleanly animals, and never seek the filthy stagnant pools to wallow in, if there is plenty of fresh water, and seldom seek the water at any time if there is abundant shade, and they are kept free from lice and other unhealthy conditions. It is only when they cannot get comfort from the heat any other way that they seek the wallow, and the wallow does not begin to offer the comfort that a shady tree with the breeze playing under it does.

SIZE AND AGE OF BREEDING ANIMALS.

The best weight for market hogs is around 200 pounds. Having this weight in mind it is advantageous to use heavy animals in the breeding herd. One must

remember, however, that the nearer approach to maturity the hog gains at a less rate per pound of feed. It is also true that the most rapid gains are made under 200 pounds; therefore pigs from a 600 pound sow which can be brought to market condition and weight at an early age are profitable. This, then is the significance of large breeding stock.

SIZE OF SOWS AS RELATED TO LITTERS PRODUCED.

	Ave. Wt. per sow	No. of pigs per litter	Ave. wt. per litter
Large sows	482	9.2	27
Medium sows	307	6.7	16
Small sows	238	5.5	14

AGE OF SOWS AS RELATED TO LITTERS PRODUCED.

	No. of pigs per litter	Ave. wt. per litter
Sows 4 and 5 years old	9.0	26.0
Sows 2 and 3 years old	7.5	19.7
Sows 1 year old	7.8	14.2

From the above tables one is led to infer that the old heavy sow is a good, profitable animal to keep in the breeding herd.

SOILS.

Almost any kind of soil, whether it be black, chocolate, gray or red, whether it be waxy or sandy, can be made productive of pork-making crops provided one will study the many bulletins published by the United States Department of Agriculture and furnished free by the department to those applying for same. One should also read bulletins and consult with the various State agricultural experiment stations that the State provides and you pay for. They are provided for just this help. Ask them.

SPAYED AND UNSPAYED SOWS.

"At the Utah Station, Foster and Merrill secured a daily gain of 0.82 pounds with spayed sows and 0.86 pounds with unspayed sows. No difference in their appetites was noticed."—Henry.

From this experiment it would appear that scarcely any advantage is secured by spaying sows intended for fattening.

TIME OF BREEDING.

Unquestionably the best time to raise farm animals is in the spring. The early pigs are always stronger, grow faster, and are more healthy than the later arrivals. The proper time to have the litters come varies in different localities, but it should be some time in March or April, so that by the time the pastures are good the pigs are ready to wean. Pigs kept on good pasture all summer with a small grain ration need little finishing in the fall to attain the popular market weight. Fall litters in Montana, especially in the higher valleys, are not always satisfactory. The sows have to be crowded and probably injured, to get them to farrow as soon as possible after the spring litter, or if the breeding is delayed the pigs come too late in the season. Fall pigs have to be carried over the winter at a considerable expense, are often stunted, and seldom yield the satisfactory returns that come from the spring litters. Unless a person is very well equipped

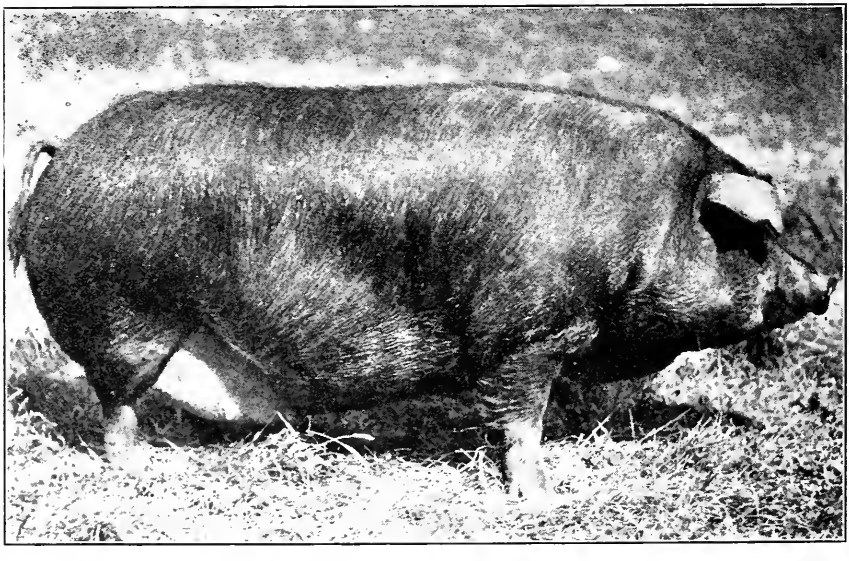
with buildings and proper feed, fall litters should be avoided. Winter litters, especially when dropped in December, January, and February, the coldest months, may be lost for want of exercise. Young pigs stay in their nests most of the time when the weather is cold, become fat and die of what is known as "thumps." Whole litters are sometimes lost from this trouble. While some breeders in this section make a success with fall litters, our experience indicates that the beginner at least should give his attention to producing early spring litters. These entail much less expenditure for houses, sheds and pens, as the pigs are in the pastures most of the time. Generally, however, the better equipment of pens and houses a breeder has, the earlier in the spring he can have the litters come.

WEANING THE PIGS.

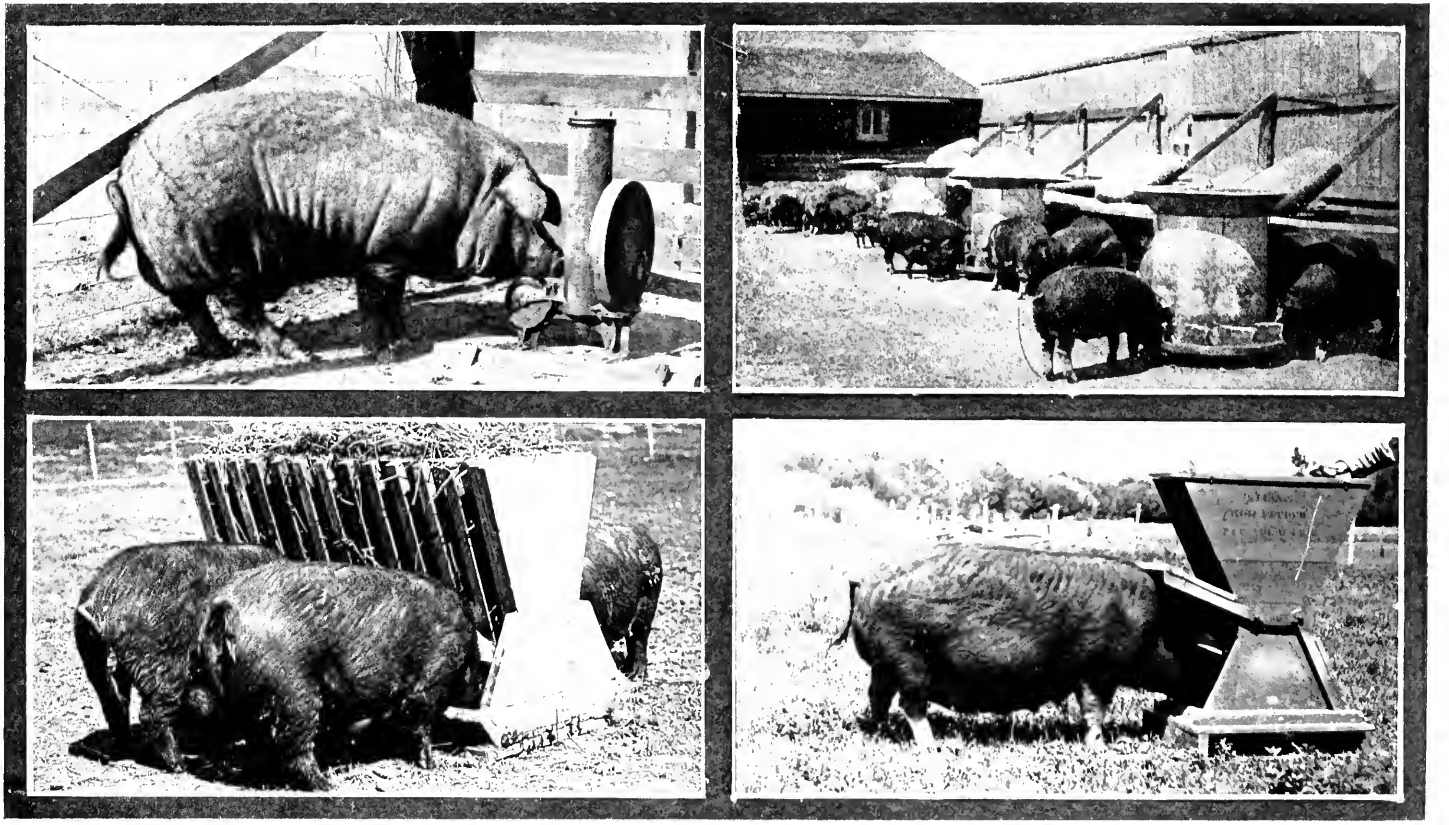
After the pig is able to eat well—which is usually from 6 to 12 weeks of age—it can be weaned successfully. The age of eight weeks is early enough, especially if the sow is expected to raise two litters of pigs per year. The sow should be separated from the pigs, returning them two or three times long enough to empty the sows' udders. After weaning put the sows on a good pasture with plenty of fresh water. Watch the sows closely, as they usually come in season from three to seven days after weaning, if they are to be re-bred.

YIELD AT FARROWING.

The yield per sow varies greatly, of course. From the number of records of a great number of pure-bred sows of eight breeds it has been found that the average yield was nine pigs to the litter. From the records kept 51 per cent of them were males and 49 per cent females.



Duroc Jersey.



Hog Oiler.
Rack for Feeding Alfalfa.

Hog Motors.
Self Feeder.

Feeds and Feeding

"The hog is at home with poor and rich; he works energetically for both. Whether inclosed in muddy pens or given the range of wide acres, he neither frets nor pines. He grows the best he can, increases his size as rapidly as his food supply admits, and invariably pays his way. As a consumer of food he eats greedily and heartily, but the account he furnishes is honest. He is wasteful of what he eats only when he is denied what he wants and in generous quantities; but, fed abundantly, he grows fat, matures rapidly, and manufactures meat and lard economically."—Burkett.

In a large measure the profits from hogs depend upon the skill of the feeder.

Bear in mind that the hog appreciates a variety of foods just as much as the human does. No one food will produce as much pork as a variety of equally good foods. The question of palatability enters into the success of the food of animals in a greater degree than is usually considered. Pasturage is the foundation of pork and is the most important factor in pork making. Without good pasturage you have no means of forcing the hogs to exercise, which is necessary for their health. In the Pacific Northwest, alfalfa, which is the best forage in the country, grows in most places, but clover, vetch, kale, barley, wheat and oats provide an opportunity for pork making that gives the country special advantages. Other pasture crops, such as kaffir corn, milo maize, sorghum, field peas and artichokes, furnish not only pasturage but a large percentage of grain food.—Bulletin No. 113, Pig Feeding, University of Florida Agricultural Experiment Station, Gainesville, Fla.; Farmers Bulletin No. 22; Bulletin No. 165, Experiment Station, Fort Collins, Colorado.

CALCULATING RATIONS.

Feed your pigs definite quantities of digestible nutriments daily per hundred pounds of live weight, bearing in mind it is necessary to maintain a certain relation between the concentrates and roughages of the ration.

To balance a ration one must spend enough time to properly study the requirements of the animals to be fed and the composition of the various kinds of feed stuff that are available. In the case of brood sows provision must be made not only for the maintenance of her body, but provision must be made also for the pigs that she is carrying. A properly balanced ration for young growing pigs is very important. Such foods as alfalfa, skim-milk, mineral matter, etc., must be wisely taken into consideration so as to insure the proper framework to build the fat for the market hog later on. In the case of market hogs a ration must be figured that not alone maintains the animals but one that will make a consistent daily gain.

Nutriments contained in the various feeds and their use are as follows: The proteids provide material for the upkeep of the body, while the carbohydrates supply the body with heat and energy. The fats in the food accomplish the same work as do the carbohydrates. One pound of fat being equal in value to about two and one-fourth pounds of carbohydrates. When these nutriments are in such proportion as to best meet the needs of the animal the ration is known as a "balanced" ration.

A Pacific Northwest Cornfield.

For complete methods for calculating rations see Dietrich's "Swine" and Henry's "Feed and Feedings." A table of nutriments may also be found in Farmers Bulletin No. 22.

CHANGES IN RATIONS.

Recent experiment has shown that when a pig is fed a certain ration for a considerable time it will digest the ration more thoroughly after a few weeks than at first and that consequently a ration to produce the best results should be fed for a long time for the pig to become used to it.

Do not change from a ration that is high in protein to one that is low in protein in less than four weeks' time, unless you want to bring on a loss of vitality. Change rations gradually, the more gradually the better, and in such manner that the pig will at all times eat the required amount with a decided relish.

COMPOUNDING RATIONS.

The compounding of rations is of very great importance. Not only does the general health of your herd depend upon it but the success of the farmer in a financial way depends upon it. It is simply the question of keeping the pigs or letting the pigs keep you.

If an excess of protein is fed, then a factor of waste is established. It follows, then, that to get the maximum gain from a herd of pigs careful attention must be given both the actual compounding of the ration and the way the food is fed. There are many ways of feeding, but only the intelligent methods bring success.

COOKING FEED.

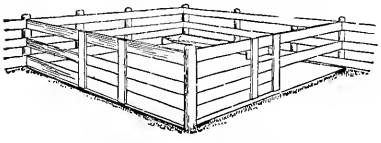
The old theory held by almost everyone for many years was that all feed must be cooked to produce the most gain when fed. This has been shown to be wrong and in most cases it has been proved that there is an actual loss of food value in cooking for fattening purposes. An exception to the above should, however, be noted in the case of potatoes. The Oregon Agricultural College has shown that when three times the weight of cooked potatoes is fed with rolled barley, a very economical gain can be had.

FEEDING FLOORS.

The feeding of corn or wheat on concrete or brick or wooden floors is good economy, especially here in the West, where much of the feeding is done during the rainy season. A good plan is to build a concrete watering trough along one side with the pig house on the opposite side.

GRINDING GRAIN.

Where the farmer raises corn, as many of them are now doing in the Northwest, it is not considered an advantage to them to have their feed ground, when the extra cost of grinding is taken into consideration. Experimentation has shown that a gain of almost 6 per cent is in favor of grinding. The gain, however, is lost when the cost of grinding is taken into account. Experiments at the Iowa Station have shown that in no case was there anything to be gained by grinding corn. In general, it was shown that corn needed no preparation, except possibly soaking shelled corn.



CREEP FOR FEEDING SMALL PIGS.
Little pigs begin to eat grain at from three to four weeks of age and should be provided with a small pen or enclosure where they can feed separately from the sows.—Wisconsin bulletin 242.

A saving of about 12 per cent can be made by grinding peas, wheat, rye, oats or barley. The general conclusion, then, is that it pays to grind small grain always, but not corn, except where it is desired to fatten pigs quickly on ground corn without regard to the expense of fattening. A hog grinder—that is, a machine for grinding grain or corn where the motive power is supplied by the hog himself—is often recommended. One advantage it has is that of giving the hog excellent exercise.—Henry's Feeds and Feeding; Bulletin No. 136, South Dakota State College of Agriculture and Mechanic Arts, Brookings, South Dakota; Bulletin No. 150, Maryland Agricultural Experiment Station, College Park, Maryland.

HOGGING DOWN.

Of late years no little attention has been given to the practice of "hogging down" corn and other crops in the field instead of first harvesting the crop and then feeding.

Some farmers have a plan of "hogging down" corn which has been planted with rape after the last cultivation of the corn.

Farmer Smith claims that the grain farmer can unquestionably get more

returns for his crop by this method of harvesting than by harvesting in any other manner.

Those who have a variety of grain crops together with good pasturage should give the question good thought when preparing his hogs for market.

Write to Farmer Smith, care of the O.-W. R. & N. Co., Portland, Oregon, for further particulars of this system. The information is free.

MAKING A SLOP.

Slop fed to young pigs should be thin; the nearer it approaches the consistency of buttermilk the better for the pigs. As the pigs grow older decrease the amount of water used. When the pigs are at a weight of about 100 pounds the slop should have the consistency of mush.

MINERAL MATTER IN FEED.

One of the most necessary points in hog feeding, almost as necessary to their welfare as the food they eat, is the supplying them at all times with mineral matter in some shape or form.

In the blood of the hog will be found chlorides of sodium and potassium, phosphates of soda, lime, magnesia and phosphorus. To supply these ingredients and to keep the hogs in perfectly healthy condition, free from rickets and other like diseases, a supply of mineral matter is absolutely essential, and wood ashes in a very large degree contain these requisite ingredients. Ashes contain lime, carbon, potassium, phosphorus, etc., and in every hoghouse there should be a box always kept well supplied with this staple form of food. It is not quite enough to throw the ashes inside the pen or in the run, as in winter snow covers them and they freeze solid, or they are trampled into the bedding of the hogs and rendered useless. A box to hold the ashes is the best method and they should be mixed with salt. It renders them more palatable and hogs fed in this manner are certain to put on flesh a great deal faster. Lime should also be fed to hogs, about a handful twice a week. It adds greatly to the growth and strengthens their bones. It is in the winter months that the hogs need most mineral matter, as during the summer when they are on pasture or foraging about for themselves they pick up enough mineral foods from vegetation or around the yard to keep them in good condition.

NUMBER OF FEEDS PER DAY.

Pigs are generally fed but twice per day, morning and evening, although some feeders give them a noon feed. This seems to be an extensive practice where pigs do not have pasture. Experimentation shows that pasture, with two feeds per day to make up the supplemental part of the ration, produces the best results, with the factor of waste at a minimum. Of course, the kind of ration will determine the number of feeds.

SOAKING FEED.

As a general rule it is said that it is best to soak unusually dry and hard grain that is apt to injure the mouth and teeth of animals during feeding. In other instances there is no economical gain by soaking.

QUART WEIGHTS OF FEEDS.

In calculating rations where it is unhandy to weigh the feeds, the following table of quart weights is of value:

Corn, whole grain	1 pound 14 ounces
Cracked corn	1 pound 12 ounces
Cornmeal	1 pound 8 ounces
Corncob-meal	1 pound 6 ounces
Oats, whole	1 pound 0 ounces
Oats, ground	0 pound 12 ounces
Wheat, whole	1 pound 14 ounces
Wheat, ground	1 pound 13 ounces
Wheat, middlings	1 pound 12 ounces
Wheat, bran	0 pound 10 ounces
Rye, bran	0 pound 10 ounces
Gluten, meal	1 pound 11 ounces
Gluten, feed	1 pound 3 ounces
Linseed meal	1 pound 2 ounces
Cottonseed meal	1 pound 8 ounces
Separator milk	2 pounds 0 ounces
Water	1 pound 12 ounces

—Farmers Bulletin No. 22.

SOWING AND GRAZING SCHEME.

The following table gives in convenient form the time of planting, rate of seeding, and length of time required to produce grazing from the crops recommended:

Green Crops for Hog Raising.

Crop—	Time to plant	Seed per acre.	No. of days after planting when ready to graze.
Fall Planting—			
Alfalfa	Sept. 1 to Oct. 15	25 lbs.	90 to 120
Burr clover	Sept. 1 to Oct. 1	20 lbs clean 36 lbs. in burr	90 to 120
White clover	Sept. 1 to Oct. 1	¾ bushel	90 to 120
Wheat	Sept. 1 to Nov. 1	3 lbs.	90 to 120
Rape	Sept. 15 to Oct. 20	4 lbs.	75
Red clover	Sept. 15 to Oct. 20	10 lbs. with rape	120
Oats	Sept. 1 to Nov. 1	2 to 3 bushels.	75 to 90
Vetch	Sept. 1 to Nov. 1	½ bu. with wheat	90 to 120
Rye	Sept. 1 to Nov. 1	¾ bu. with vetch	90 to 120
Spring and Summer Planting—			
Red clover	Feb. 1 to Mar. 1	20 lbs.	120
Japan clover	Mar. 1 to Mar. 15	24 lbs.	75
First peas	Mar. 1 to May 30 Mar. 1 to June 30	½ bu. in drill 1½ bu. broadcast	75 to 90 100 to 120
Rape (Early Essex)	Apr. 1 to June 30	6 lbs.	60 to 90
Oats, rustproof	Slips in June	½ bu. in drill 1½ bu. broadcast	Oct. 20 to Nov.

STANDARDS FOR FEEDING SWINE.

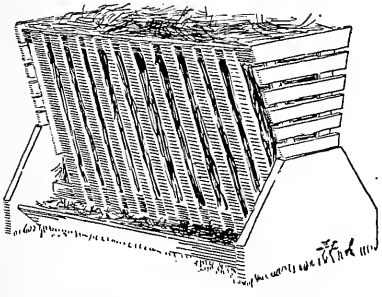
(Wolff-Lehmann.)

The following table indicates the amount of food required per 1,000 pounds live weight for growing pigs, brood sows and fattening hogs.

Growing swine breeding. Age in months.	Weight.	Dry matter.	Digestible nutrients. Protein.	Carbohydrates.	Fat.	Nutritive ratio.
2 to 3	50	40	7.6	28.0	1.0	1;4.0
3 to 5	100	35	5.0	23.1	0.8	1;5.0
5 to 6	120	32	3.7	21.3	0.4	1;5.0
6 to 8	200	28	2.8	18.7	0.3	1;7.0
8 to 12	250	25	2.1	15.3	0.2	1;7.5
Growing swine fattening.						
2 to 3	50	44	7.6	28.0	1.0	1;4.0
3 to 5	100	35	5.0	23.1	0.8	1;5.0
5 to 6	150	33	4.3	22.3	0.6	1;5.5
6 to 8	200	30	3.6	20.5	0.4	1;6.0
8 to 12	300	26	3.0	18.3	0.3	1;6.4
Brood sows		22	2.5	15.5	0.4	1;6.6
Fattening swine:						
First period		36	4.5	25.0	0.7	1;5.9
Second period		32	4.0	24.0	0.5	1;6.3
Third period		25	2.7	18.0	0.4	1;7.0

GRAIN AND OTHER FEEDS.

A certain amount of grain feed is needed to grow hogs with the greatest profit, and still more is needed to fatten and fit them for market, but it should be used only to supplement the feeds which the hogs harvest for themselves in the field. Pork cannot be made economically when all, or even a large portion of the feed comes from the crib or the mill. The hog is an omnivorous animal and needs "roughage" and fresh green feed for his best health and growth and to produce meat of the best quality. When young his grain feed should be such as will furnish material for bone and muscle and not such as will produce an excess of fat, while, as the animal approaches maturity, fat-producing foods should be given more liberally. No one kind of grain feed can be used economically from weaning until the full-grown animal is slaughtered, and there should be a gradual change from the nitrogenous, muscle-making food given to the pig to the carbonaceous, fat-making food, which is the more profitable for the last few weeks before killing. The young animal must have good bone and muscle before it can carry the heavy load of fat desirable for the market or develop the strength, vigor and health necessary in a good breeding animal.



A ROUGHAGE FEED RACK FOR SWINE.

For feeding alfalfa, clover, soy bean hay or other coarse feed, a rack of this kind is handy and prevents waste. More simple racks are often constructed on the inside of a hog house by placing them against one of the sides of the building or adjoined to the pen partition.—Wisconsin bulletin 242.

WATER.

Either artesian, shallow well or running stream, preferably the latter, is good for hogs. If the water must be hauled, or is scarce, an automatic watering device should be used. It will pay for itself quickly. The small running streams originating from springs on the individual farms are the best and safest. Best for the reason the water is fresh and sweet, and safest for the reason that the water cannot have been contaminated by disease from other herds up the stream. Where larger streams run through the place, great care should be exercised to know what herds water above you and the condition in which they are kept, for the reason that one herd at the head of a stream becoming diseased will be the source of danger that will be conveyed by the stream to all other herds watering below it. It should be considered by every farmer in case of disease where conditions make it impossible to keep his herd from the stream that it is his moral duty to notify all farmers below him of the outbreak, in order that they may protect themselves. Indeed, it should be a moral obligation among farmers to notify each other promptly of the outbreak of disease, whether on streams or not, so that preventive measures may be adopted to forestall the spreading of same.

DRY MATTER AND DIGESTIBLE FOOD INGREDIENTS IN 100 POUNDS OF FEEDING STUFF.

Feeding stuff.	Total dry matter, pounds.	Protein, pounds.	Carbohydrates, pounds.	Fat, pounds.
Green fodder—				
*Corn fodder (average of all varieties)	20.7	1.10	12.08	0.37
Rye fodder	23.4	2.05	14.11	0.44
Oat fodder	37.8	2.44	17.09	0.97
Redtop, in bloom	34.7	2.06	21.24	0.58
Red clover, at different stages	29.2	3.07	14.82	0.69
Crimson clover	19.3	2.16	9.31	0.44
†Alfalfa, at different stages	28.2	3.89	11.20	0.41
Cowpea	16.4	1.68	8.08	0.25
Rape	14.3	2.16	8.65	0.32
Corn silage (recent analyses)	25.6	1.21	14.56	0.88
*Corn fodder, field cured	57.8	2.34	32.34	1.15
Corn stover, field cured	59.5	1.98	33.16	0.57
Hay from—				
Barley	89.4	5.11	35.94	1.55
Oats	84.0	4.07	33.35	1.67
Redtop	91.1	4.82	46.83	0.95
‡Timothy (all analyses)	86.8	2.89	43.72	1.43
Mixed grasses	87.1	4.22	43.26	1.33
Red clover	84.7	7.38	38.15	1.81
Crimson clover	91.4	10.49	38.13	1.29
†Alfalfa	91.6	10.58	37.33	1.38
Cowpea	89.3	10.79	38.40	1.51
Wheatstraw	90.4	0.37	36.30	0.40

*Corn fodder is entire plant, usually sown thick.

†Lucern.

‡Herd's grass of New England and New York.

DRY MATTER AND DIGESTIBLE FOOD INGREDIENTS IN 100 POUNDS OF FEEDING STUFF—Continued.

	Total dry matter, pounds.	Protein, pounds	Carbo-hydrates, pounds.	Fat, pounds.
Rye straw	92.9	0.63	40.58	0.38
Oat straw	90.8	1.20	38.64	0.76
Roots and tubers—				
Potatoes	21.1	1.36	16.43	....
Beets	13.0	1.21	8.84	0.05
Mangel-wurzels	9.1	1.03	5.65	0.11
Turnips	9.5	0.81	6.46	0.11
Rutabagas	11.4	0.88	7.74	0.11
Carrots	11.4	0.81	7.83	0.22
Grain and other seeds—				
Corn (average of dent and flint)	81.1	7.14	66.12	4.97
Barley	89.1	8.69	64.83	1.60
Oats	89.0	9.25	48.34	4.18
Rye	88.4	9.12	69.73	1.36
Wheat (all varieties)	89.5	10.23	69.21	1.68
Mill products—				
Corn meal	85.0	6.26	65.26	3.50
Oat meal	92.1	11.53	52.06	5.93
Barley meal	88.1	7.36	62.88	1.96
Ground corn and oats, equal parts	88.1	7.01	61.20	3.87
Pea meal	89.5	16.77	51.78	0.65
Waste products—				
Rye bran	88.2	11.47	52.40	1.79
Wheat bran, all analyses	88.5	12.01	41.23	2.87
Wheat middlings	84.0	12.79	53.15	3.40
Wheat shorts	88.2	12.22	49.98	3.83
Cotton-seed meal	91.8	37.01	16.52	12.58
Linseed meal (new process)	90.1	30.59	38.72	2.90
Sugar beet pulp (fresh)	10.1	0.63	7.12	....
Sugar beet pulp (dry)	93.6	6.80	65.49	....
Milk and its by-products—				
Whole milk	12.8	3.38	4.80	3.70
Skim milk, cream raised by setting	9.6	3.10	4.61	0.90
Skim milk, cream raised by separator	9.4	3.01	5.10	0.30
Buttermilk	9.0	2.82	4.70	0.50
Whey	6.2	0.56	5.00	0.10

FEEDING THE BOAR.

In the summer turn him into a good pasture, give him only enough grain to maintain him in good flesh, about a pound daily to each 100 pounds of live weight In the winter a good daily ration is 1 to 3 lbs. grain, 4 to 6 lbs. roots, together with alfalfa hay. Pumpkins, kale or cull fruit answer the same purpose as roots. In the breeding season equal parts of corn, ground oats and middlings is an excellent ration.—Popular Bulletin No. 63, State Agricultural Experiment Station, Pullman, Wash.

FEEDING THE BROOD SOW.

The following feed combinations have proved satisfactory. They should be modified as cost or conditions indicate:

No. 1—
- Rolled or ground wheat ..... 1 part
- Shorts or middlings ..... 2 parts
- Bran ..... 1 part

No. 2—
- Ground or rolled oats ..... 1 part
- Shorts or middlings ..... 1 part

No. 3—
- Rolled oats ..... 1 part
- Rolled wheat ..... 1 part
- Shorts ..... 1 part

No. 4—
- (a) Shorts ..... 1 part
  Bran ..... 1 part
- (b) Rolled oats ..... 2 parts
  Alfalfa meal ..... 1 part

No. 5—
- Rolled oats ..... 2 parts
- Rolled wheat ..... 1 part
- Alfalfa meal ..... 1 part

Barley, rolled or ground, may be substituted for or mixed with the wheat. Tankage may be safely used if the sow has been accustomed to it before farrowing. It has been lately shown at the Iowa Station that tankage or meat meal when used as a protein component not only lessens the cost of feeding before farrowing but increases the vigor of the new-born pigs.

AFTER FARROWING.

It is better to keep the sow hungry than to overfeed her. She should be fed very little the first 24 hours after farrowing. Allow her drinking water, and when she shows signs of hunger a limited amount of a thick slop ration may be given her.

The feeding of the sow may also be divided into three periods: The farrow period, the pregnant period, and the nursing period.

The farrow period embraces the period before the sow is bred for the first time. Pasture supplemented with bone and muscle producing feeds for the young sow, together with freedom are of importance. In the winter add some succulent food to take the place of the pasture. For mature sows that are farrow a good clover or alfalfa pasture is sufficient to keep them in order.

During the pregnant period after the spring litter is weaned a good pasture supplemented by a little grain for a short time if in very thin flesh is sufficient. If the sow is bred for a full litter more grain may be added with a little tankage where the pasture is not available.

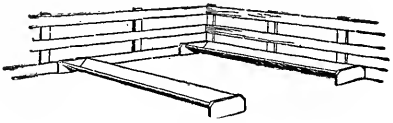
Near the farrowing time the grain component of the ration should be increased during the several weeks before farrowing. A good grain mixture is equal parts of rolled wheat, barley and oats, with ¼ lb. tankage daily.

During the first part of the nursing period do not give any feed for 24 hours after farrowing. Give plenty of water.—Popular Bulletin No. 63, State Agricultural Experiment Station, Pullman, Wash.

FEEDING THE PIGS.

After weaning, the young pig may be fed on the ration suggested for nursing sows. So as to accustom them to eating, they may be fed with the sow for a while—feed in the form of a thick slop in a trough. A little shelled corn or grain may also be fed on a clean floor. Give them a little charcoal broken into small pieces, before turning them into pasture.

To insure rapid development, feed the pigs three times daily and give them the run of a small pasture. A large economy of grain may be had by using a good pasture freely.



CEMENT FEEDING FLOOR SAVES FEED.

Cement feeding floors and V-shaped troughs can be used to good advantage on any hog farm. If the feeding spot is located in a protected place inside feeding will be unnecessary except at farrowing time.—Wisconsin bulletin 242.

The following rations have been found satisfactory for developing young pigs, whether confined to a dry lot or given the run of a pasture, or when provided with forage crops and fed ear corn or other fattening feeds to finish them for market:

Ration 1—
- 32 pounds corn meal.
- 32 pounds wheat middlings.
- 32 pounds ground oats.
- 4 pounds oil meal.

Ration 2—
- 32 pounds ground barley.
- 32 pounds wheat middlings.
- 32 pounds ground oats.
- 4 pounds oil meal.

Ration 3—
- 47 pounds corn meal.
- 47 pounds wheat middlings.
- 6 pounds oil meal.

Ration 4—
- 47 pounds wheat middlings.
- 47 pounds ground barley.
- 6 pounds oil meal.

The oil meal has the advantage of forming a uniform mixture of the ration. Feed the grain or corn in increasing amounts during the fattening period.

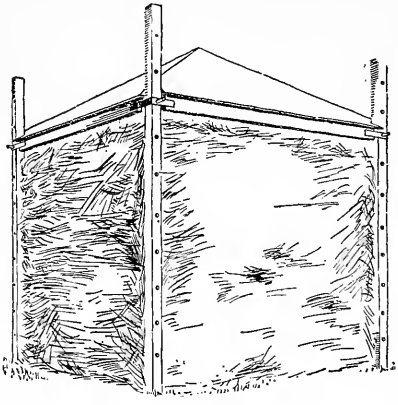
A small amount of tankage may be fed with these rations on the basis of ¼ lb. per day per 100 pounds of pig.—Bulletin No. 242, Agricultural Experiment Station of the University of Wisconsin, Madison, Wis.

COMMON FEEDS.

Alfalfa. Unquestionably, alfalfa is the leading hog forage in this section of the country. In normal seasons it affords a constant supply of palatable forage throughout the season.

The feeding value of alfalfa is largely in its chemical compound known as protein; its extreme digestibility is another desirable quality to be considered, and not least is its appetizing character. Not only do all animals like it, but when given in moderate quantities it seems to increase the general appetite for more fat-making feeds. Alfalfa alone is not a fat-making food. Animals fed upon it grow in weight, but the weight is principally of bone, blood and muscle. It is

without a sufficiency of fat and carbohydrates, and these should be added in such feeds as corn, corn meal, field peas, feterita, etc; or to a limiteed degree even in corn stover, sorghum or millet. When alfalfa is fed alone all the protein cannot be digested, and therefore it is always economical to add some carbonaceous foods, if animals are to be fattened.—From Coburn's "The Book of Alfalfa."



AN ADJUSTABLE ROUGHAGE STACK COVER.

Roughage stacked in the hog lot where it can be easily thrown down for feeding sows in winter should be protected by a cover. A simple roof adjustable on four corner posts is satisfactory.—Wisconsin bulletin 242.

Alfalfa hay is a splendid supplemental feed for brood sows, though it is sometimes difficult to get them to eat enough unless ground and mixed with corn or grain ration.

Alfalfa pasture alone furnishes but little more than a maintenance ration for pigs. By having several small pastures so that the pigs may be changed from one to the other, and the alfalfa cut there is no serious injury to the alfalfa. The number of pigs turned into pasture should never be large enough to keep down the growth. A well set vigorous field will carry from 15 to 25 pigs per acre.—Bulletin No. 31, United States Department of Agriculture, Washington, D. C.; "The Book of Alfalfa," Coburn; Farmers Bulletins No. 339, 373 and 495; Bulletin No. 152, Rhode Island Experiment Station; Alfalfa, Jos. Wing.

Apples. Apple growers can use culls and windfalls to good advantage. If hogs are let run among the trees, both the hogs and orchard are benefited. The trees should be protected from rooting. Orchardists should bear in mind that hogs eat the wormy, decaying apples, preventing many tree and leaf diseases.

The value of apples for pigs is equal to a good grass pasture. Orchardists in the Hood River Valley have lately gone into swine raising with very good results. In some cases feeding crops are raised between the rows of trees.

Artichokes. For winter and early spring there is no better crop than artichokes, which give a rich, fresh feed just at the time when grasses and clover are at their poorest. There are few crops that can be more easily grown on a fairly good soil which will give a greater amount of green feed per acre and be valuable for both growing and fattening animals. As they keep well in the ground until late in the spring, it is usually better to save them for January and February grazing.

The yield is variable—from 400 to 800 bushels per acre. In a test at the Oregon Station, hogs that were given the run of an artichoke field and were also given a partial feed of grain, made a gain of one pound in weight for each 3.1 pounds of grain fed, while it usually takes about 4½ pounds of grain to make one pound of gain. In tests made at the Missouri Agricultural College, one bushel of artichokes and three bushels of corn were found superior to four bushels of corn, and other tests have given similar results. The inexpensive gain in weight is not the only advantage in using artichokes, as the better health consequent on adding to the ration this fresh and succulent feed is a matter of great importance, especially in animals which are kept for fattening.

Barley. Barley, if rolled, is nearly as valuable as corn; it should, however, be fed in combination with corn, wheat, middlings, skim milk, roots, alfalfa, etc. In these combinations it will be found to be one of the best of feeds for pork production. It is said to produce good, firm, finely flavored pork. Should be soaked or ground for best results.—Farmers' Bulletins Nos. 443 and 518.

Bluegrass. A good pasture in early spring and late fall, but inferior to alfalfa, clover or rape.

Bran. A coarse, bulky feed. Rich in ash and good for brood sows. Too bulky for pigs or fattening hogs.

Buttermilk. Makes an excellent feed where it is not diluted too much with churn washings.

Buckwheat. A good fattening feed, though not equal to wheat.

Blood Meal. In feeding blood meal, which is a valuable supplement to corn or other grains, care should be taken to feed it with its own weight of wheat middlings in order that the pigs will relish it.

Blood meal is especially valuable where no skimmed milk is to be had. A splendid tonic for runty pigs and a good corrector of scours.

Canadian Field Peas. An excellent forage crop, especially when combined with oats and rape or with rape alone.

Clover. In sections where it grows its grazing value is about equal to that of vetch, but very few localities have been found where both succeeded, though one of the two can be made to grow on nearly all soils, and the one which succeeds best should be grown by every hog raiser for winter and early spring grazing.

Red clover is one of the best hog forages. Alsike clover is not so good alone, but can be mixed with red clover to advantage. Mammoth clover is not so valuable for hog pastures as the red. Sweet clover makes a very good hog pasture the first year after seeding, but is not relished so well the second. A few pounds per acre mixed with red and alsike make a first-class pasture. Sweet clover is principally valuable where other clovers will not grow.

Clover hay may be used for brood sows, but is not so good as alfalfa.

The prudent stockman will always provide some kind of roughage so as to keep both his stock in good health and the cost of his concentrates down as low as possible.—Farmers' Bulletins Nos. 445 (Red Clover) and 485 (Sweet Clover).

Corn. In the Middle States corn has always been a staple food for hogs and in that country is the best and cheapest for "finishing off" to make the animal ready for butchering. What applies to corn in the Middle States applies to corn and grains in this section of the country. Corn can be grown in the Pacific Northwest, and every farmer who goes into the business of hog-raising should make a thorough test of the possibilities of corn-growing. It does not follow that it must come to full maturity in order to be valuable. In many sections of the country corn is cut and shocked while the ear is in the milk, and it makes a valuable feed when prepared that way. Each of the grains is a fattening food; they are not the best for young animals or breed stock. When young animals have an abundant range with a good supply of nitrogenous feeds like alfalfa, clover, vetch and field peas, the grains make a valuable addition to the ration, but they should not be given in excess and will usually be found more profitable if mixed with shorts, bran or some other food containing a large portion of protein. It is wise to give much more attention to the productiveness of a variety, its uniformity and its adaptability to the soil and climate where it is to be grown, than to the varietal name. A variety or strain can be rendered exceedingly productive by proper breeding. Careful breeders of productive strains of corn are needed in every com-

munity, and growers who do not care to grow a special seed patch and select their seed with care should buy the best seed obtainable. A bushel of seed corn will plant six acres and seed of the best quality will increase the yield 10 bushels per acre, thereby increasing the harvest 60 bushels for each bushel of seed planted. While it is true that proper attention to seed selection and methods of cultivation will increase greatly the average production per acre for all land now devoted to corn-growing, it is equally true that the cultivation of corn will never be found profitable on very poor land, and corn-growing should never be attempted on poor soil until it is brought into a fertile condition by the growing and plowing under of a leguminous crop, the application of manures and otherwise cultivating the land. The nature of the corn plant is such that it will not produce grain unless the soil is rich enough to afford a considerable growth of stalk. The richer the soil is the heavier the yield will be. Corn will not thrive where there is clay in the soil or where it is boggy. The lowland should be well drained and the soil where the clay abounds should be enriched. Methods that produce the best results in some States have failed to produce good results in others. Some sections having fertile soil and good rainfall require for the best yields thick planting, while in other sections poor soils or scanty rainfall require thin planting. In some sections with deep soils and subject to prolonged dry weather the best results are obtained by planting in a furrow; while in sections where the land is low and wet or where the rainfall is excessive, the best results follow when the corn is planted on a ridge. The most valuable information regarding the growing of corn in any particular section can be obtained from unprejudiced, observant corn-growers of many years' experience. The methods of cultivation in general use in one section of the country differ greatly from those in another section.

Many fields of corn are now dotting the acres of Northwestern States. The idea of corn-growing of course is new, and we give below directions by Mr. C. L. Smith for growing corn in this section of the country.

FALL PREPARATION OF CORN GROUND.

To secure the best results, the ground should be rolled and disced immediately after harvest and as much manure as is available spread thinly but evenly over the ground during the winter or as early in the spring as possible. The ground should be disced in the spring as soon as it is dry enough so it will not puddle, and disced again in a week or ten days; when dry enough so it will not crumble from the mould board of the plow, plow 8 or 10 inches deep. Disc the same day, then harrow every week until planting time.

SPRING PREPARATION OF CORN LAND.

Disc as soon as it is dry enough, so the soil will not puddle, then harrow. When dry enough so that it will crumble from the mould board of the plow, plow 8 or 10 inches deep. Disc the same day. Ordinarily one discing will put the ground in fairly good condition, but the increased yield of corn will more than pay for discing twice or three times. Thereafter the ground should be harrowed once a week until the weather is warm enough so that the corn will sprout and grow quickly.

Get the best available; this would be an early maturing variety that had been grown in the locality for a number of years. When this is not possible, then get the best Northern-grown, early-maturing variety available.

Test for germination and never risk a crop on seed that will not test at least 90 per cent germinating quality.

Plant in hills 42 inches apart each way, two kernels in a hill.

Plant one to one and one-half inches deep. If planted by hand, step on each hill to firm the soil.

Harrow with a spike-tooth harrow, teeth set very slanting, within five days after planting.

Thereafter harrow each week until the corn is two or three inches high, then cultivate every week or ten days until the corn is tasseled out.

SEED SELECTION.

Select your seed corn with much care. Ask your Agricultural College to test your seed for you or tell you how to do so.—Bulletin No. 141, Maryland Agricultural Experiment Station, College Park, Maryland; Bulletin No. 81, United States Department of Agriculture, Washington, D. C.; Bulletin No. 106, Iowa State College, Ames, Iowa; Farmers' Bulletins Nos. 229 and 253.

Cotton Seed Meal. Cotton seed meal is particularly fatal, swine frequently dying where concentrates in this form are used.

Cow Peas. Cow peas and corn form a valuable feed when fed as a mixture. Cow peas are not generally grown in this section of the country, but where tried out have been found to be the equal of corn in food value.

A good way to feed it is to pasture the crop. Most of the nutriment is furnished by the seed, not the leaves of the plant. Can also be fed as ripe hay or in form of meal.—Bulletins No. 16, 89 and 121, United States Department of Agriculture, Washington, D. C.; Farmers' Bulletin No. 318.

Digester Tankage. As a ration balancer, digester tankage is proving more popular in the Northwest each year. Through the Central States it has been used for years and is recognized by all the leading experiment stations of the Middle States as necessary for the brood sow and from the pig to the market hog. It is a well-known fact that a hog is a partly carniverous animal and requires a certain amount of animal protein to make it thrive normally. The sow at the time of farrowing is robbed of a large percentage of her actual being which can be properly replaced if she is fed digester tankage previously, at the rate of ½ or ¾ pound per head per day. Or, in other words, her ration should consist of from 10 to 12% tankage. This will assure a good, strong litter of pigs, with healthy foundation on which to build future market hogs. At 100 pounds a hog should be eating in his ration at least ¼ pound tankage per day. This amount should be worked up to ¾ pound by the time the hog is 220 pounds, making an average of ½ pound per day for the entire feeding, during the time the hog is 100 pounds to 220 pounds. This approximates 10% of its ration. Pigs under 100 pounds should be fed on the basis of the 100-pound pig, figuring according to weight.

Tankage is a straight meat product, dried and ground and contains no disease. It is put through a process of 40 pounds steam pressure for ten hours

All the agricultural colleges of the Northwest recommend tankage very highly and their bulletins and tests can be had by applying to them.

Emmer. This is a comparatively new grain in this country and is especially adapted to the semi-arid regions. For brood sows used in connection with bran and shorts it should make an excellent food. It is especially high in the protein content.—Farmers' Bulletin 139–466.

Ensilage. Has little place in hog feeding, it being too bulky and washy. Feeding place difficult to keep clean, and resultant decay may cause abortion in brood sows.

Feterita. While feterita has not been tried out completely in the Northwest, in several sections shows up well in point of production. Makes an excellent feed for hogs. Similar to kaffir corn in value.

Field Peas. Field peas give a rich grazing from July until October and should be grown for use during the late summer and early fall. Being rich in protein, they make excellent food for growing animals in any section of the country where the rainfall is from 12 inches upward, and field peas should be used as a rotating crop with wheat. In sections where artichokes are grown, peas for early use may be sown on the ground from which the artichokes are harvested and they should be ready for grazing in two months from the time of planting.

Peas when fed whole by turning the pigs in on the cured vines on the ground produce about 400 pounds gain to the acre. The unthreshed vines after being stacked, fed in yards, produce about 700 pounds of gain to the acre. It is recommended that barley, wheat, potatoes or roots be fed once a day to pigs foraging on peas.—Farmers' Bulletin No. 224; Bulletin No. 47, Agricultural Experiment Station, Fort Collins, Colorado.

Garbage. Refuse products from large hotels or city collections are fed to hogs extensively, and invariably cause a variety of disorders. In the first place its composition varies greatly from day to day and oftentimes death results from its use. If used on a large scale arrangements should be made to sort the mixture and steam or cook thoroughly before feeding; furthermore, it should never be fed extensively, but rather mixed with corn and middlings or other staple feeds of known composition. In this way the feeder can eliminate many of the disorders often encountered and at the same time utilize the bulk of the collected feed. The feeding of small amounts several times a day of such products will give more satisfactory results.—Live Stock Commission of New Jersey, Circular No. 1.

Kaffir Corn. Where corn and wheat is high in price, kaffir corn can be substituted. It is so hard that it will usually have to be ground or soaked.

Kale. Thousand-headed kale is one of the very best winter succulent feeds for hogs grown west of the Cascades. It will winter grown hogs nicely without other supplemental feed. For young growing hogs a small supplemental feed of grain is required for best results. The soil should be made rich for kale, using planty of stable manure. Sow the seed in drills or seed beds early in the spring and transplant about the first of July, setting the plants three feet apart each way. Cultivate similar to corn. If good cultivation is given the crop will be ready to feed by the first of October and will be good in an ordinary winter until the following April. The yield will depend, of course, upon the fertility of the soil, but should be from 15 to 40 tons per acre.

The cost of producing kale in Oregon is under usual conditions about $2.35 per ton. Kale may be made especially valuable in renovating old hog lots.—Bulletin No. 102, Oregon Agricultural College, Corvallis, Oregon.

Linseed Oil Meal. Linseed oil meal fed as a supplement with wheat middlings or corn shows a good per cent of gain. Linseed meal seems to be characterized by hard fat in the pigs fed with it.

A good feed for sows shortly before farrowing, and with middlings makes a good swill for little pigs.

Mangels. Largely composed of water, like other root crops. They are chiefly valuable for the variety and bulk they add to the brood sow's ration.

Millets. Millets as a "catch crop" or a supplementary crop can hardly be excelled. Can be used as an excellent substitute for corn in preparing hogs for

market. In this case the seed only would be fed. It can, however, be used as a forage.—Farmers' Bulletin No. 101.

Meat Meal. See Digester Tankage.

Middlings and Bran. Shorts and bran are among the best feeds for growing animals, and when they can be had for $20 or less per ton, will always be more profitable than corn for young stock. For young pigs bran is not so good as shorts, as it often has an irritating effect on the bowels, and when fed too liberally causes scours and other troubles from which the animal is slow in recovering. Shorts, when fed in reasonable amounts, seldom causes such troubles, and is usually the best and cheapest grain feed for use during the first three or four months. As the animal grows older bran may be used more freely.

Middlings fed as a slop is the standard feed for little pigs the first few weeks after they begin to eat.

Field peas may be used in place of shorts or bran, but as they require grinding their economical use is confined to the feeding of young animals, and the crop can commonly be used more profitably in other ways.

Milo. Milo has proved a good dry-land crop. The composition is almost the same as corn. While not grown to any extent in this territory, its possibilities as an efficient stock food are large.—Farmers' Bulletin No. 322.

Oats and Vetch. A mixture of winter oats and hairy vetch, sown in October or November, makes an excellent grazing crop for use after the artichokes are gone. When sown on fairly good wheat ground this crop will have made such a rank growth by February that it will furnish good grazing during the next two or three months. The winter oats bear grazing better than rye or barley, are less easily injured by freezing and will continue their fresh growth much later in the spring. It is undoubtedly the best grain crop we have for grazing. The vetch also makes a vigorous growth, and pound for pound gives a feed richer in protein or muscle-forming food than any other common pasture plant. Its unusually large proportion of protein makes it especially valuable for young and growing animals and it gives the very best of early grazing for fall pigs which are to be kept through the summer. When the oats begin to head and the vetch to flower, in April, stock should be taken off so as to allow the plants to mature seed, which they will do late in May or early in June. The ground should than be plowed and planted in field peas or some other summer crop, which can be cut for hay or grazed off in September and October, after which the vetch seed left in the ground, and usually the oats also, will make a volunteer growth fully as good as that of the previous season. Rotation has been used six years without replanting the vetch and there has been an almost constant increase in the yield. In some seasons the volunteer oats have failed to make a full stand, but the vetch has never failed to make a satisfactory growth. One bushel of the oats and one peck of vetch seed are sufficient to seed an acre. The soil should be a rich loam which is not too light. The vetch has not often been satisfactory on sandy soil unless properly inoculated. By the time the hogs are removed from the oats and vetch the permanent pastures will be in fine condition and will give good grazing for many weeks. This will be especially true where alfalfa, melilotus and clovers are grown and at this time but little grain need be fed. During the early summer months growth of bone and muscle are more important than the accumulation of fat, and, although it pays to feed a little grain at all times, the amount used during the early summer may safely be less than at any other season. Whole oats make an excellent feed for brood sows and boars when not too high-priced. Can be ground and substituted for middlings when the price warrants. Oats are not

high enough in protein to balance the corn ration alone.—Farmers' Bulletins Nos. 424 and 515.

Oil Meal. See Linseed Meal.

Potatoes. Potatoes to effect the greatest value should be cooked. A good method is given in a little pamphlet issued by the Portland Union Stock Yards Company, entitled "Potatoes for Fattening Pigs." It is generally held that one part of grain is equal to about 4.5 parts of cooked potatoes by weight. A small amount of digester tankage would help the ration. Effective results may be had in the following ration: Ground or rolled barley, cooked potatoes and skim milk.

Pumpkins and Squashes. No hog farm is complete without a crop of pumpkins or squashes. Usually they can be grown in the cornfield. They can either be cooked or fed raw to young pigs and brood sows. The seeds are an excellent worm remedy and have some value as a corrective of the urinary system.

Pasture. The value of pasture for fattening pigs is given in the following table, taken from Henry's "Feed and Feeding":

	No. of pigs.	Lbs. ave. daily gain.	Lbs. grain for 100 lbs. gain.
Full grain ration in pens	74	0.9	484
Full grain ration on pasture	20	1.2	413
Three-fourths grain ration on pasture	17	1.0	383
One-half grain ration on pasture	16	0.7	304
One-fourth grain ration on pasture	10	0.5	247
Pasture only	19	0.2	...
Green alfalfa only, in pens	2	0.3	...

The hog raiser should never be without some kind of pasture. Not only health but economical production and the reproduction of good thrifty pigs depend upon it.

The fields for grazing should be made rich and thoroughly prepared or there will be disappointment. Deep break them in August, if possible; follow the same day with the disc and finish with a section harrow. Broadcast a thousand pounds of air-slacked or quick-lime per acre before using the harrow.

The fields to be planted in wheat and vetch, in rape and clover, and in alfalfa should receive 300 pounds per acre of raw bone or 500 pounds of high-grade acid phosphate, or 10 loads of well-rotted stable manure, broadcast ten days before planting. The wheat should be rust-proof and beardless.

The fields for sorghum, soy beans and field peas should be sown to oats (where oats are hardy in winter, and where not, to wheat for winter grazing) and plowed under in the spring before planting the main crops. The foregoing directions are for the first planting of the fields. After this the farmer can rotate according to maturity of crops. Plant field peas broadcast thickly and cultivate in. Use 1½ bushels of seed per acre.

Use 2 to 4 pounds of rape per acre, depending on fertility of soil, and 10 pounds of clover seed.

Use the orange variety of sorghum. Plant in drills 3 feet apart, using one-half bushel of seed per acre.—Bulletin No. 147, United States Department of Agriculture, Washington, D. C.; Farmers' Bulletin No. 278.

Proprietary Stock Foods. As a general rule it is unwise to feed any of the so-called stock foods; they do not seem to have any beneficial effect on the digestion. A hundred pounds of wheat will produce as much or more gain when fed alone than it will if fed with stock foods added to it. —Bulletin No. 105, South Dakota Agricultural Experimental Station, Brookings, South Dakota.

Rape. This is a cabbage-like forage and makes an excellent green feed. Can also be planted for pasturage. Two crops of Dwarf Essex, the most reliable, can be planted—one for early and the other for late pasturage. It is an excellent renovator for old hog lots or pens, creating good sanitary conditions and destroying germs.—Bulletin No. 164, United States Department of Agriculture, Washington, D. C.; Farmers' Bulletin No. 164.

Roots. Experiments at the agricultural stations have found great value in feeding various roots such as sugar beets, mangels, carrots, artichokes, potatoes, sweet potatoes, etc. The chief value in any of the roots seems to be the great gains made by the pigs in growing. The good effect of the roots on the digestive organs seems to produce great thrift and growth. It is well to reduce the amount of roots toward the end of the feeding time and finish on grain so as to get the proper quantity of fat.

Rye. Valuable for late fall or early spring pasture. Not good for hogging down. The grain makes a fair feed for almost any class of hogs if soaked. Rye middlings can be used instead of wheat middlings. Rye smut or ergot will cause abortion in pregnant sows.

Shorts. See Middlings.

Skim Milk. Skim milk should always be used when it is available. It is not only a good flesh producer in itself, but it also makes the ordinary grain feeds more digestible and so adds greatly to their value. While skim milk alone is rarely profitable, from 20 to 40 pounds being required to make a pound of meat, when mixed with grain in the proportion of 3 pounds to each pound of grain, its value is greatly increased. The Oregon Station reports that in feeding this proportion it secured 81 cents per hundred pounds for skim milk in two experiments. In a test reported to C. P. Goodrich, 1 bushel of corn produced 10 pounds of pork, and 100 pounds of skim milk produced 5 pounds of pork, when fed separately. When fed together, however, the mixture produced 18 pounds of meat, an increase of 3 pounds due to the mixing. In this case 100 pounds of skim milk took the place of 44.8 pounds of corn. If the corn was worth 25 cents per bushel, the skim milk was worth 19.6 cents per 100 pounds; if the corn was worth 40 cents, the milk was worth 31.4 cents. Extended tests in the feeding of skim milk have been made at the Utah Station and among the facts brought out by the work are these: "The hogs fed on the milk-and-grain ration made much more rapid gains than either those fed on milk alone or on grain alone. The time required to make 100 pounds of gain was 79 days for the hogs fed on milk and grain, 116 days for those fed on grain alone, and 147 days when the feed was milk alone. The milk-and-grain fed lots required 2.58 pounds of digestible matter, the milk-fed lots 2.85 pounds, and the grain-fed lots 3.19 pounds to make one pound of gain in live weight." In this case 100 pounds of skim milk took the place of 23.2 pounds of grain in the mixture. Work at other stations has given very similar results and has demonstrated when not more than 4 pounds of skim milk is used with each pound of grain, the milk is worth from 15 to 30 cents per hundred pounds. (See Oregon experiments above.) The younger and smaller the hogs the higher is the value of milk. For full-grown and aged animals it is of less value. It may be taken as a safe rule that it is profitable to pay at least 15 to 25 cents per hundred pounds for all the skim milk needed to make four times the weight of the grain fed, and where it is impossible to secure enough for all the hogs, the available supply should be given to those pigs nearest the weaning age and to sows that are suckling pigs.

Soy Beans. A high protein feed. Valuable for hogging down—either with corn or as a supplement; also makes a good supplemental feed if mowed when

nearly ripe and fed to the hogs through the winter, vines and all. Soy bean meal is sometimes used as a substitute for tankage or oil meal.

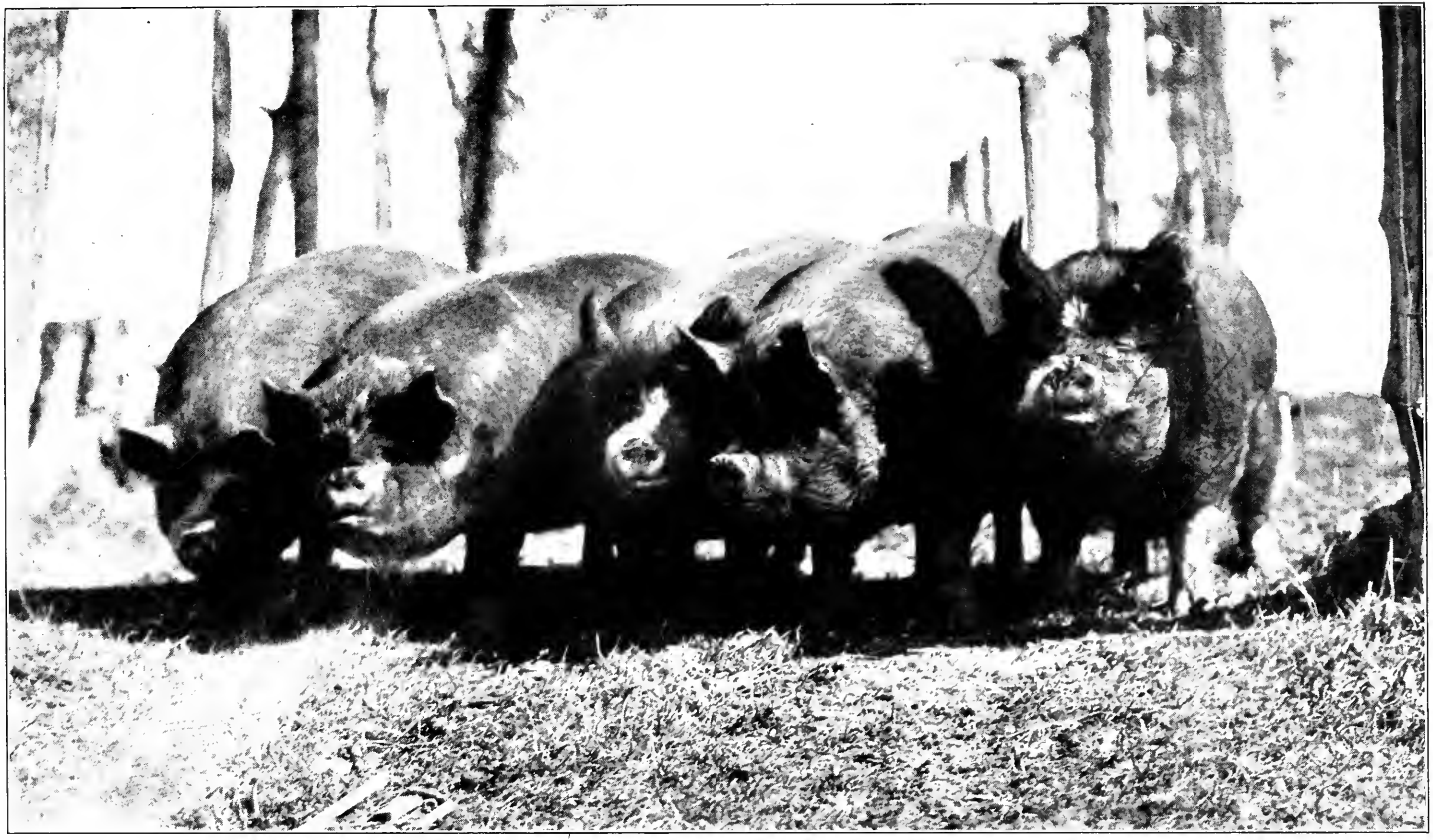
Sugar Beets. Have about the same value as mangels.

Stubble Fields. Wheat farmers find by turning hogs into the stubble fields for "hogging down" that an almost clear profit can be made without very much effort. The grain the hogs get in this manner would be wasted otherwise. The mistake of overloading the stubble field with pigs should not be made.

Tankage. See Digester Tankage.

Vetch. One of the most valuable forage crops of the Northwest is vetch. It is richer in protein and mineral matter than alfalfa. The green hay can be fed to pigs or they can be turned into a pasture. The dry hay may be fed to brood sows or fattening shoats with good results.

Wheat. Here in the West wheat is fed extensively, and it has been shown by many experiences that wheat can be fed equally as well as corn. It can be fed in several ways: whole, rolled, wheat middlings, wheat shorts, or as wheat bran. Possibly the best way to feed wheat is in the rolled form.—Bulletin No. 80, Oregon Agricultural College; Bulletin No. 90, South Dakota Agricultural Station, Brookings, South Dakota.



An Excellent Group of Berkshires.

Houses and Equipment

Three objects should be constantly kept in mind when building a hog house. The first and most important is dry, comfortable sleeping quarters. The body heat required to keep a hog warm in a wet bed or on a cement floor is equivalent to several pounds of feed per week in the winter, and the heat combined with moisture in the summer will cause unpleasant smells and breed disease germs. Have the sleeping quarters in the highest part of the hog house, so that water will drain away from it—not into it. Face the hog house to the south so as to admit sunlight to as much of the interior as possible.

A large central house together with a number of colony pens has proved a good plan. The portable houses are especially useful in housing different classes and sizes of hogs in separate fields. They are used extensively for brood sows after farrowing.

THE "A" SHAPED PORTABLE HOUSE.

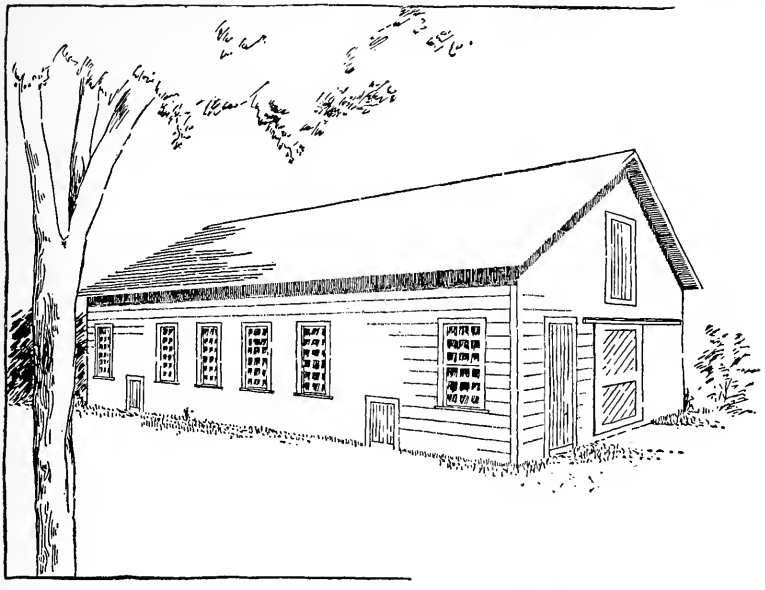
The "A" shaped house is one of the easiest the farmer can construct. The sides form the roof and if well constructed will shed water without the use of shingles or roofing paper. By means of the runners, which may be beveled off on the lower edge, the house is easily moved from one location to another. The construction is so simple that we give only the lumber bill, which follows:

Nine pieces 1″ x 12″ x 16′ and 11 O. G. battens 16′ long for roof.
Three pieces 2″ x 6″ x 16′ and 11 O. G. battens 16′ long for roof.
Five pieces 1″ x 12″ x 14′ for ends.
One piece 2″ x 4″ x 10′ for ridge.
Two pieces 2″ x 8″ x 10′ for plate.
Seven pieces 2″ x 4″ x 16′ for rafters and braces in frame.
Three pieces 2″ x 6″ x 8′ for runners.
Four pieces 1″ x 12″ x 16′ rough for flooring.

"A" SHAPED PORTABLE HOG HOUSE.

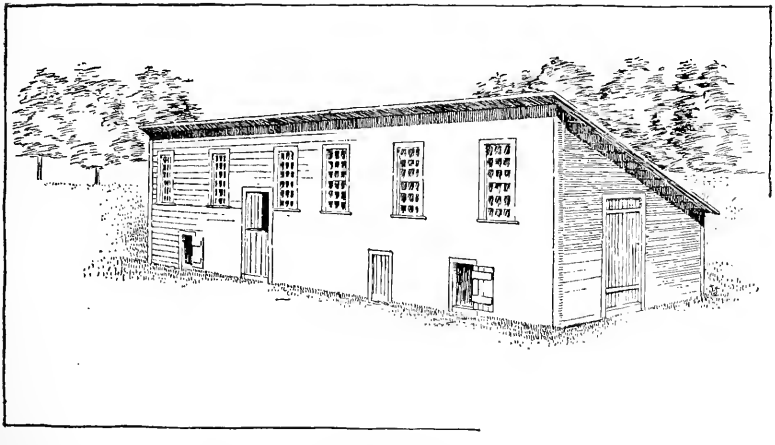
This type of pen is the easiest and cheapest to construct and will be found very convenient.—Wisconsin Bulletin No. 242.

Some Producers place two of these 8′ x 8′ houses upon a platform 16′ square. They are easily moved in this manner and always provide clean dry qurters.



UTILITY BUILDING FOR HOUSING SWINE.

A building of this type should be high enough to store on the second floor bedding and feed, and should be provided with as many windows as possible. It should face so as to admit the morning sun in one side and the afternoon sun in the other.—Wisconsin Bulletin No. 242.



SHED ROOF PERMANENT HOG HOUSE.

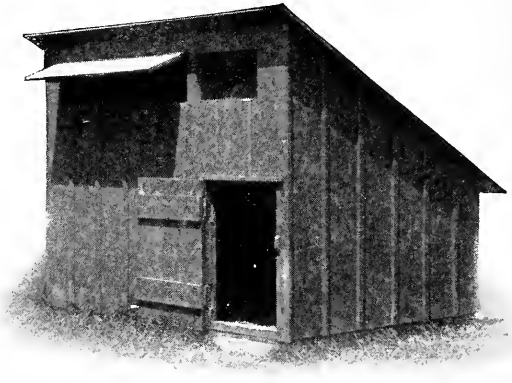
Where only ten or twelve brood sows are kept and a central house is preferred, a building 16′ by 48 wide proves useful. Cement floors can be constructed to good advantage in front or at the rear. For farrowing 12 separate pens can be obtained by putting in a temporary partition lengthwise and dividing the space on each side equally.—Wisconsin Bulletin No. 242.

If a door is thought necessary it can readily be constructed by the builder. The ventilator together with the door will provide plenty of ventilation.

SHED ROOF PORTABLE HOG HOUSE.

Many hog raisers prefer the shed roof portable house. The house shown in our cut is 6 ft. 4 in. wide and 8 feet long. There is a door in the rear the same size as the lower one in front 2 feet wide and 2½ feet high. The rear door is placed diagonally opposite the front. Upper front doors are placed for additional ventilation. A wooden ratchet holds this door in the proper position.

Specifications.—Construct the frame eight feet long by six feet four inches wide on seven 2″x4″ joists six feet long, and two pieces of 2″x4″ nailed across the ends of the joists. This will make the foundation for the floor six feet four inches



SHED ROOF HOG HOUSE.
Although houses of this type are more difficult and expensive to construct, many prefer them to the "A" shaped pens.—Wisconsin Bulletin No. 242.

wide and eight feet long. Beneath the frame are nailed three 2″x4″ pieces which serve as runners for moving the building. The house is built six feet two inches high in front and three feet high in the rear. Seven twelve-foot boards cut in two can be used for boarding the front of the house. The small space left at the top may be closed by a batten or frieze board. Two eye bolts should be securely inserted in one end of the joist for attachment when the house is to be moved.

This shed roof house is somewhat more difficult to construct and requires more material for the floor space covered than the "A" shaped pen. A shingled roof is necessary to insure the best results, and that of course is an additional expense.

The following lumber is necessary to construct the house described:

Six pieces 2″ x 4″ x 16′
Five pieces 2″ x 4″ x 12′
Two pieces 2″ x 4″ x 14′, for frame.
Three pieces 1″ x 12″ x 16′, rough for floor.
Eleven pieces 1″ x 12″ x 12′ (dressed one side), for sides and ends.
Eleven pieces 1″ x 12″ x 12′ (dressed one side), for sides and ends.
Five pieces 1″ x 12″ x 16′ (dressed one side), for roof.
Four pieces O. G. battens 16′ long and eleven pieces O. G. battens 12′ long, for roof and sides.

If a shingled roof is desired, the following material is necessary for roofing:

One piece 1″ x 12″ x 14′
Five pieces 1″ x 6″ x 14′ (dressed one side).
Three bunches of shingles.

LARGE SHED ROOF PORTABLE HOUSE.

This house shown is 8 feet by 12 feet and is constructed in the same manner as the small shed roof portable house. A partition may be constructed in the middle so that two lots may be kept in the same house. Since it is well supplied with doors this house is exceedingly well ventilated. A shade may be attached to the rear if desired. The chief objection to this house is the difficulty in moving.

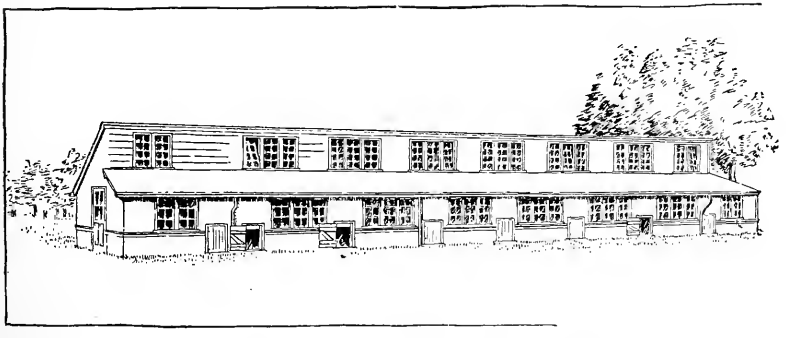
Lumber bill follows:

Eight pieces 2″ x 4″ x 12′
Three pieces 2″ x 6″ x 12′
Two pieces 2″ x 4″ x 18′
Six pieces 2″ x 4″ x 16′
Three pieces 2″ x 4″ x 14′
Eight pieces 1″ x 12″ x 12′ (rough) for floor
Eight pieces 1″ x 12″ x 14′
Six pieces 1″ x 12″ x 12′
Two pieces 1″ x 12″ x 10′
One piece 1″ x 12″ x 16′, for sides and ends
One piece 1″ x 6″ x 12′, for braces and cross pieces for doors
Thirty-six pieces O. G. battens 10′ long, for sides
Thirteen pieces 1″ x 12″ x 10′, for roof

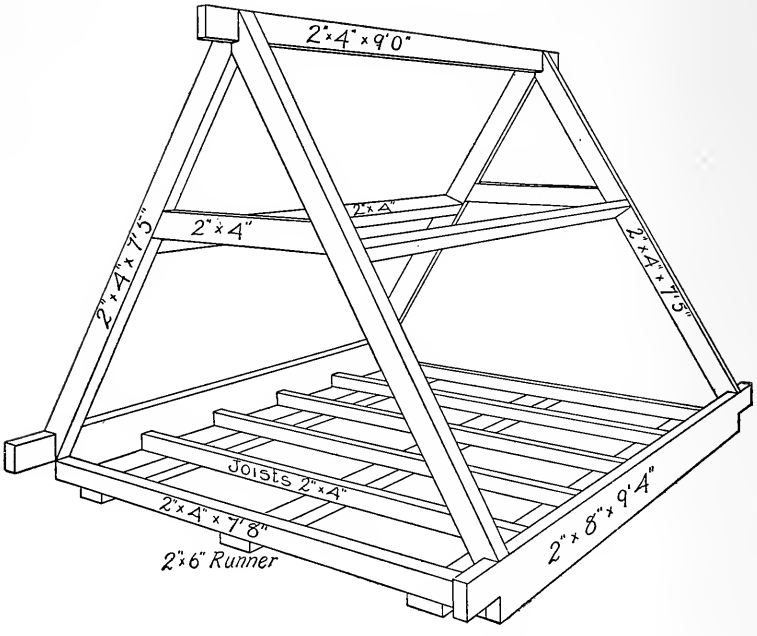
For a shingled roof it will require 130 feet of rough lumber 14 feet long and six bundles of shingles laid 4½ inches to the weather. A shingle roof is preferable.

STATIONARY HOG HOUSES.

Stationary houses have been planned in great variety. One's farm and methods in hog raising must be taken into consideration in planning this kind of house. We give several cuts of houses that have proven satisfactory. The various Agricultural Colleges can give you practical and detailed information for the building of these houses.

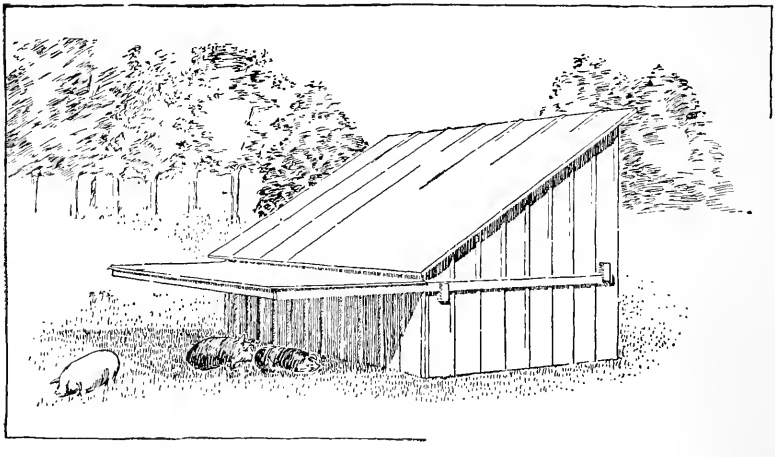


LARGE SUNLIGHT HOG HOUSE.
—Wisconsin Bulletin No. 242.



FRAME WORK OF AN "A" SHAPED PORTABLE HOG HOUSE.

By using the size of lumber described and cutting it the length given in this bulletin, the "A" shaped house can be constructed without the employment of a carpenter.—Wisconsin Bulletin No. 242.



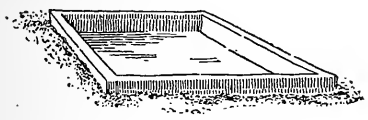
PORTABLE HOG HOUSE WITH SHADE ATTACHED.

To be used where no other shade is available.

—Wisconsin Bulletin No. 242.

BREEDING CRATE.

The use of the breeding crate is growing in favor. When a large sow is to be bred to a small boar or a small sow to a large boar, it is almost a necessity. Some sows, even when in heat, will not take the boar readily, and the use of the crate in these cases insures a successful service. Such an appliance can be made by any farmer. All that is necessary is a frame made of 2″x4″ lumber, closed in front and open behind with a bar made to slip behind the sow just behind the hocks, an adjustable railing on each side of the sow for the boar's feet to rest on, and a platform on which the boar can stand. This platform should be constructed so that it can be raised or lowered as necessary. A good size is 6 feet long, 2½ feet wide and about 4 feet high. A windlass is used for raising the platform.



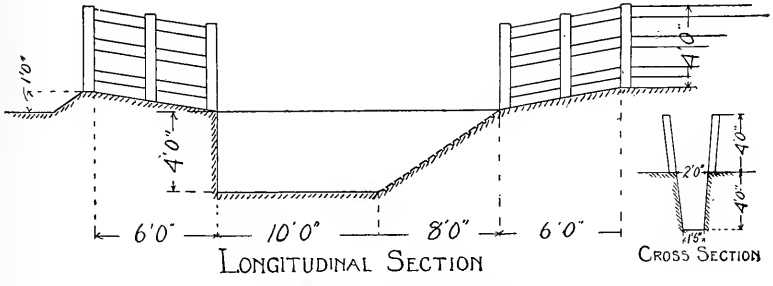
CEMENT HOG WALLOW.

The cement hog wallow should be located in a shady place and made so as to contain from eight to ten inches of water. Crude oil or coal tar dip, poured into the water, will help keep swine free from lice and their skin in good condition.—Wisconsin Bulletin No. 242.

DIPPING TANKS.

The dipping tank probably supplies the most effective means of eradicating lice. In using cold tar dips, be sure to dip twice so as to destroy the newly-hatched nits at the second dipping.

Kerosene emulsion or crude oil preparations may be used with effect.

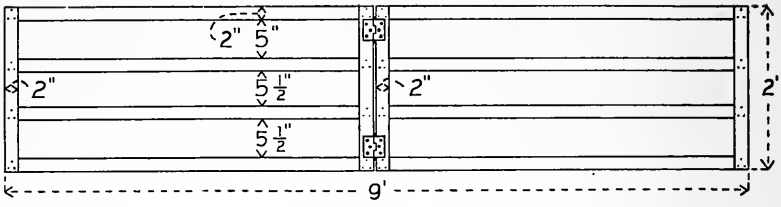


CEMENT DIPPING TANK.

Warm weather is the best time to dip. Two or three treatments per year will usually keep the herd free from parasites.—Wisconsin Bulletin No. 242.

FENCES.

Above everything, build your own fences right, and build them permanent. Once your hogs learn they can get through your fence trouble begins. Not only does this prevent control of your own herd, but puts you absolutely at the mercy of your neighbor's diseased, fighting and scrub animals, which will contaminate and worry your hogs and make you feed many pounds more food to catch up the weights lost by worry. Always remember it is the contented and quiet dispositioned hog that puts on weight.

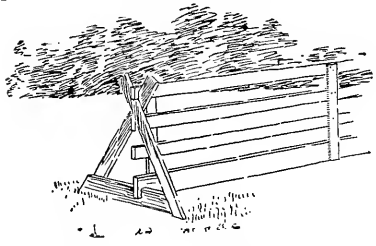


A CONVENIENT, EASILY CARRIED HURDLE.

These may be made in single panel lengths, but the hinged hurdle is more useful in sorting and catching pigs.—Wisconsin Bulletin No. 242.

FLOORS FOR HOG HOUSE.

A great deal can be said in favor of both cement and plank floors. A cement floor has the advantage of insuring clean pens and is also, practically speaking, permanent if rightly laid. Its disadvantages are that when slippery, hogs are more or less apt to fall and cripple themselves and it is also responsible for a great deal of rheumatism, with which hogs are nowadays affected. The plank floor is perhaps the better of the two, all things considered, although such a floor will not last over six or eight years before it will need to be replaced and as soon as the planks begin to rot so that there are holes in the floor it becomes dangerous for the hogs to be on, and is also very draughty, especially in winter. We would not advise putting sand under a plank floor as it would soon become a disease breeder. Perhaps the best floor for a hog house, all things considered, is to have it all cemented with a raised platform of planks on one side to be used for sleeping quarters. In this way the hogs will not have to lie on the cement and they will have the advantages of both the plank and cement floors without the accompanying disadvantages of either.



FENCING IN THE FEED LOT.

The portable fence is made to enclose the portable house and for enclosing temporary quarters and lots. The panels are held erect by the supports which should be nailed to stakes driven into the ground.—Wisconsin Bulletin No. 242.

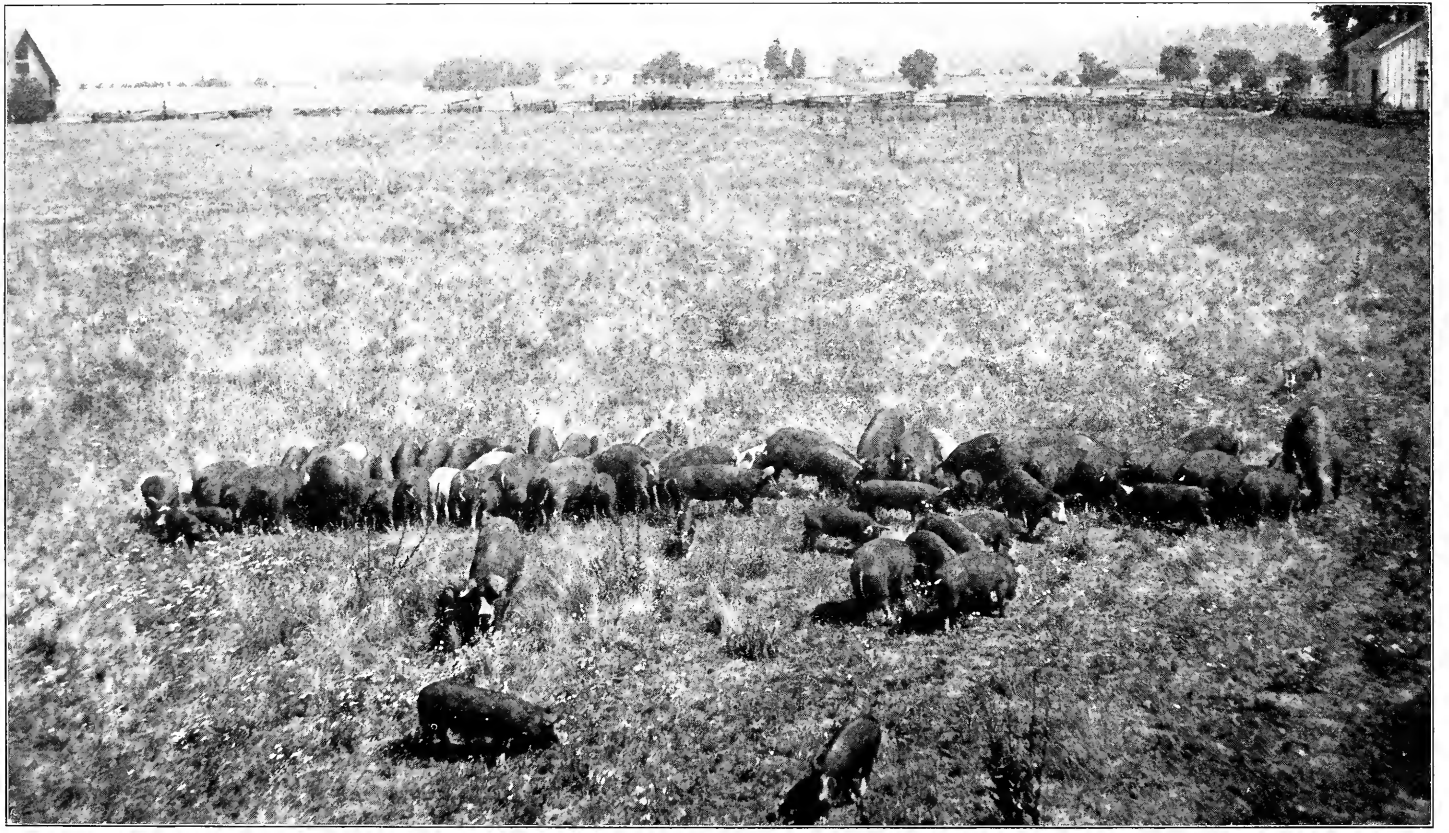
HOG OILER.

Some means should be taken by every hog raiser to provide crude oil for his herd. This can be done in a number of ways. Numerous patterns of hog oilers are on the market for the purpose. An oiler can also be improvised by setting a post into the ground and wrapping a gunny sack around it. Soak the sack with crude oil. Hogs will soon form the habit of rubbing against the oiled surface to rid themselves of lice.

TROUGHS.

Well made troughs are a necessity. The most common form is the V-shaped trough. This may be improved by nailing cross strips at intervals of about 12 inches, which keep the hogs from crowding and from getting into the troughs. Another convenient plan is to build the troughs across the front of the hog pen, fastening them securely. Iron troughs are sometimes recommended. They are very good but expensive. The front of the pen may be hung on hinges. To it is attached a strong iron rod which fits into holes at the outside edge of the trough and holds the pen front firmly. When feeding, the front is swung inward and the rod inserted in the inside edge of the trough. The pigs cannot then get to the feed until the pen front is swung out. This permits putting the feed evenly in the trough without being interfered with by the animals.

Never permit the troughs to get sour or filthy, as is often the case when animals are overfed and fail to get all that is put before them. Concrete troughs cost more than wooden ones, but pay for themselves both in wearing and sanitary qualities. Be sure to clean them every day.



Typical Grazing Scene.

Diseases and Sanitation

Hogs are, like all other animals, subject to many diseases. If you do not have a good work on Diseases of Farm Animals, write your agricultural experiment station for definite information. Give them good, definite data and they will supply you with good methods to eradicate. The cause of nearly all diseases of hogs can be traced to insanitary conditions of the hog premises.

DISINFECTING.

There is no place on the farm where disinfectants are more useful than in the hog house or yards. Whitewash, air-slaked lime, chloride of lime, stock dips, compounds of creosote, crude carbolic acid or other commercial disinfectants are commonly used. Pastures and hog lots may be improved by removing the hogs for a few weeks each year, and cleaning away all litter. The unused lots can be plowed and planted with a suitable forage crop. Precautions against contaminations of food and drinking water must be taken. Muddy yards soon become filthy and endanger the health of animals. They should be well drained, and all wallow lots filled. It is poor practice to use pens and yards where drainage from other lots collects or puddles. The quarters where hog cholera has raged should be thoroughly cleaned; all walls, floors and troughs scraped, after which a good disinfectant should be applied with a brush or force spray pump. All litter should be removed and burned, the yards plowed and seeded or where this is not practical, dry straw spread over the ground and burned will be effective. Crude oil applied with a brush will effectually destroy lice and other external parasites. Repeat in seven days until all nits are killed.

The following solutions are recommended for disinfecting premises:

Compound of creosote	1 part to 30 parts of water.
Crude carbolic acid	1 part to 30 parts of water.
Corrosive sublimate	1 part to 800 parts of water.

Circular No. 1. New Jersey Live Stock Commission; Farmers' Bulletin No. 345.

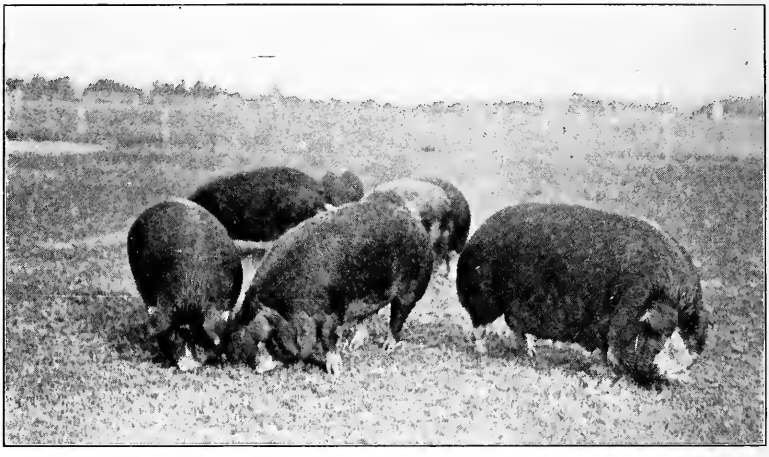
HEALTHY HOGS IMPORTANT.

A perfectly healthy, vigorous hog does not take cholera nearly as readily as a hog in unhealthy or poor condition. The condition of hogs is always important, but doubly so when cholera is raging in the country.

Clean up the hog pens and lots. Filth is as objectionable to a hog as to a man. A cholera germ will live for months in a hog wallow, or in droppings, or around a dirty trough, or in the cracks in the wall or floor, and sometimes all winter, even in a northern State. All of these places should be cleaned up, and kept clean. If you had cholera last year, a good coat of whitewash, applied to everything, well sprayed or rubbed into the cracks and corners, is a good thing.

Add 5 per cent carbolic acid.

If there are wallows, fill them up with ashes or gravel.



A Show Herd of Poland Chinas.

All hog lots should be plowed up occasionally.

Careful adherence to sanitary rules will go a long way toward keeping the swine herd free of diseases.

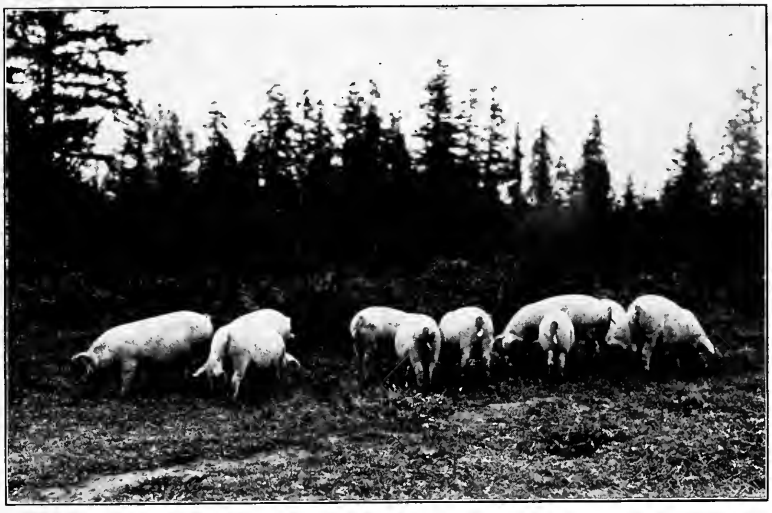
HOG CHOLERA.

Vaccination against hog cholera is a valuable and cheap insurance. If the boar and brood sows are immunized by the simultaneous method they will be out of danger from cholera for life and the pigs will be immune until weaned. The pigs may be given the single treatment at weaning time at very little expense and they will be safe long enough to develop and fatten for market. The expense of the single treatment is very small and it can be administered by the hog raiser himself.

Hog cholera has been discussed so often that we give in very brief outline the following:

How the Cholera Germ is Carried to Your Farm.

1. By owners of diseased hogs.
2. By the purchase of new stock.
3. By dogs, cats and other animals.
4. By pigeons, crows, buzzards and other birds.
5. By pasturing well hogs adjacent to sick ones.
6. By infected streams.
7. By hunters, hog buyers and visitors.
8. By exchange work.
9. On the wheels of vehicles.



Chester Whites in a New Clearing.

Methods of Prevention.

1. Clean up the hog pens.
2. Use the dipping vat.
3. Keep hogs free from worms and lice.
4. Keep wood ashes, slacked lime, salt and soft coal in the hog lot.
5. Provide pasture for summer and alfalfa or clover hay for winter feed.
6. Fill up the hog wallow—provide bath tubs. (Germs live for months in filthy hog wallows.)
7. Vaccinate hogs exposed to cholera, using only serum furnished by laboratories operating under Federal or State license.
8. Separate sick hogs from well ones.
9. Kill and burn hogs seriously sick with cholera.
10. If your hogs have cholera stay at home.
11. If your neighbors' hogs have it stay away.
12. Keep dogs and cats at home.
13. Shoot pigeons, crows and other birds which fly from farm to farm.
14. Keep hogs away from running streams, especially if there is cholera in the neighborhood.
15. Question the hog buyer—find out where he has been before allowing him to go in your hog lot.
16. No germs—no cholera.

Farmers' Bulletin 379 and "Hog Cholera," a bulletin by the Portland Union Stock Yards Company, may both be read with profit.

CHARCOAL IN THE FEED LOT.

Hogs should have before them constantly charcoal if it can be had, and if not, wood or cob ashes, and slacked lime or old plaster, salt and fine, soft coal. A hog will not root if he can get what he needs without rooting. When your hogs are rooting they need something they are not getting in their feed. Supply it if possible.

A CONDITION POWDER.

All animals kept in good condition have a natural tendency to ward off disease; and it will be seen that proper feeding and care, cleanliness of quarters and yards will do much in the way of prevention. Clean, dry pens, regular and nutritious feeding, comfortable sleeping quarters, exposed to plenty of sunshine with the pens cleaned and disinfected regularly are factors necessary for keeping up the animal's vitality. Dipping when the weather is favorable, using any of the recognized effective mixtures, is a very good plan to keep the hogs thrifty and free from lice and other pests. Many hog raisers feed the following mixture to aid digestion, stimulate circulation and to prevent worms:

Wood charcoal, powdered	1 pound.
Sulphur	1 pound.
Sodium, chloride	2 pounds.
Sodium, bicarbonate	2 pounds.
Sodium, sulphate	2 pounds.
Sodium, hyposulphate	1 pound.
Antimony sulphide (black antimony)	1 pound.

Dose: 1 large tablespoonful to each 200 pounds weight of animal daily, fed at varying intervals.

CRUDE OIL.

Crude oil is very effective in the killing of lice, mange, etc. Unfortunately there are some grades of crude oil which irritate the animal's skin, especially when used in hot weather.

A good grade of crude oil is one of the most effective insect killers known. An old sack saturated with the oil and placed so that it touches the pigs when they pass in and out of the farrowing house is an effective way of applying it.

INFLAMED UDDER.

If the udder of the sow becomes inflamed at farrowing time, apply heat by means of hot salt water followed by a light massage until the udder is comparatively dry, then apply the following liniment, composed of equal parts of—

Fluid extract of phytolacca.
Fluid extract of belladonna.

LICE.

There are several ways of getting rid of this almost ever-present pest.

The rubbing post does the work automatically. An oiled cloth may be hung over the entrance of the hog house so that it will touch the hogs as they go in and out. Dipping is practicable. It is well to dip twice a few days apart, once for the lice and the next for the newly hatched nits.

MANGE.

Although true mange is rare in hogs, they are at times affected with a scabby or scurfy condition of the skin that can be remedied by the use of a wash or by dipping in a coal tar disinfectant.

SCOURS.

This trouble is caused usually by sudden change of feed. Be careful what you feed and of the amount. Cold, wet bedding is another cause. Keep the bedding dry, change often. It is an almost endless job through the weather we have some months, but it is a paying job at that. Do not feed soured slop or from a sour and unclean swill barrel.

THUMPS.

The best way to treat this disease is like cholera—to prevent it—which can only be done by forcing the pigs to take exercise when they are very young. Pigs that are confined to the narrow limits of the pen become sluggish and large chunks of fat form around the heart, which injures its functions, and the lungs try to repair the damage, which is seen by the rapid heaving of the sides, commonly known as thumps. One should get his pigs out on the ground as quickly as possible, where they can have plenty of room to run about for exercise. If any are noticed to be sluggish and indifferent as to whether they leave their bed with the others, force them out and fasten up the hog house door to prevent them returning to their bed. Another way is to place the sleeping quarters some distance from the feeding place, requiring the pigs to run from one place to the other. Exercise, good feeding and sunlight is the only cure for thumps, but it must be given before the disease advances very far, to be of any service.

The sows should have very little corn during the period of nursing, and while the pigs are making their first growth they should be given food containing a large percentage of protein, such as green clover, oats or milk and just enough corn to keep them growing nicely without getting too fat.

Sunlight for the little pigs as well as proper feeding for the mother is necessary for the little fellows' development, and if they cannot get it in their pens they should be turned out and the door fastened for a few hours each day.

WORMS.

Intestinal worms do great damage to the hog herd, particularly when the hogs are young. A wormy hog is not a healthy one and will not make desirable gains. A method of prevention is: On the first and fifteenth of the month feed in a slop at the morning feeding turpentine in the following quantities: Pigs less than 25 pounds, ½ teaspoonful for each pig; pigs 25 to 40 pounds, 1 teaspoonful; 40 to 100 pounds, 2 teaspoonfuls, over 100 pounds, 1 tablespoonful.

With the evening feed give kerosene, linseed or castor oil in the same quantities.

In each case be sure to mix the oil or turpentine thoroughly with the slop.

A worm remedy that can be purchased at most drug stores is santonin: Dissolve one ounce in warm or hot water for 50 or 60 pigs weighing about 100 pounds each. Fast the pigs a few hours and feed remedy in the slop. Follow with a dose of globular salts to expel the worms. In a few days repeat the treatment.

Prospective Market Toppers

Marketing

"This growing and feeding of hogs for market should become more common on the average farm. Too many farmers have the idea that the danger of cholera is too great to make any attempt at the growing of hogs for market, which is all wrong. There is nothing better than to be able to ship to market at one time a carload of choicely finished hogs which will always bring in a large amount of money with seemingly little expense."—A. J. Lovejoy.

AGE TO MARKET THE HOGS.

Early marketing means shorter risk from disease, quicker turning of money and less interest charges to be considered and more profitable gains. At the age of weaning, the pig is making very rapid and his most profitable growth. It takes fifty per cent more feed to put a pound of gain on a 150-pound pig than to put a pound on one weighing 40 pounds, and 83 per cent more feed for a 350-pound hog. Keep the pigs gaining rapidly while young on pasture and dairy by-products always supplemented with a grain ration.—Bulletin No. 74, Idaho.

GRADING HOGS FOR SHIPMENT.

Care should be taken by each shipper in sorting out a load of hogs for shipping to market. Where possible select hogs of even size, finish and quality, remembering that these are three of the essentials of a "market topping" consignment. Buyers make a special effort to buy hogs of this kind for the simple reason that they can estimate the dressed pork very closely. On the other hand, a load of hogs of assorted sizes and finish is hard to judge and consequently buyers make liberal allowances when buying. If you must ship mixed weights and sizes, your commission man will sort and classify so as to obtain the best possible price. In other words, in selecting your car for shipping, grade for quality and desirable weights.

CO-OPERATIVE SHIPPING.

In their effort to meet the demands for a better way to market live stock, farmers have hit upon the co-operative shipping idea. This idea has been developed in the State of Minnesota to a greater extent than any other. Northwestern farmers have taken up the idea, and numerous shipping associations have been organized with very good results. These shipments have often been made up of hogs belonging to from 8 to 20 owners. They are kept separate in the yards and each lot sold upon its merits. The expenses are prorated and separate returns made to each owner. Detailed information will be sent on request regarding the organization of co-operative shipping clubs.

Almost Ready for Market.

HOW TO KEEP POSTED ON THE MARKET.

Probably the best way to keep in touch with the market is through the use of a good market paper and your commission merchant. Reliable information can always be obtained also from the Portland Union Stock Yards Co.

MARKET YOUR HOGS ALIVE.

It has been the custom of some producers to market their hogs dressed instead of alive. This is a losing method and the prices realized are nearly always less than prices obtained for live hogs. Besides the disagreeable labor involved the producer runs the risk of spoilage and a market that is very uncertain. From a great number of tests it has been found that here on the Coast the yield in dressing hogs is approximately 75%. With this as a basis, the following table shows what dressed hogs must sell for, **on the farm,** without any expense whatever added:

Live price.	Dressed price.
$5.00	$6.66
5.50	7.33
6.00	8.00
6.50	8.66
7.00	9.33
7.50	10.00
8.00	10.66
8.50	11.33
9.00	12.00
9.50	12.66
10.00	13.33

TIME TO MARKET.

The best time to market hogs is when they are finished and are at a point where they refuse to put on profitable gains. It is always best to sell them at this time. Do not speculate on the market; it is regulated solely by supply and demand and is as apt to decline as advance.

SHIPPING SUGGESTIONS.

If hogs must be driven in the summer time for any distance to the shipping point, drive them slowly and preferably in the cool of the morning.

In hauling hogs see that air spaces are provided between the upper and lower bed of the wagon. A hog rack will often pay for itself where many hogs are to be hauled.

Be sure to have your car ordered of the transportation company in ample time so that there will be no delay at the loading chute.

Hogs should be fed a light, dry feed before loading in the cars.

Sand is an ideal bedding for hogs in shipping. In the summer time wet the sand thoroughly before the hogs are placed in the car. In the winter straw may be used instead of the sand.

In the summer time it is a good plan to nail a cleat on the inside of the car so as to close the bottom crack. After loading the hogs and cleating the door, wet the bottom of the car thoroughly before the train starts. See that the floor is wet en route at every opportunity. Be careful not to throw water on the backs of overheated hogs.

When shipping it is well to have the hogs accustomed to the car a short time before the train is moved. See that they are not switched about too much en route to market.

At each stopping point see that the heavy hogs do not get in cramped positions or crowded in one end of the car.

Shippers should, when possible, load their hogs so that they arrive at the stock yards in time so that they can be unloaded, fed and watered by the time the market opens on the day of arrival.

Do not feed the hogs abnormally just before loading—sudden changes in the ration is at any time more or less harmful.

The greatest loss in shipping usually occurs immediately after loading and while the car is being switched. It is well to have an attendant with the car at this time to prevent the hogs from fighting and piling up by being frightened by the movement of the car.

Never use a prod pole or club on hogs when loading (or at any other time). If you do, the result will be a lot of bruised animals. A garden hose split in three pieces, attached to a stick makes an excellent whip for hogs.

WEIGHTS FOR MARKETING.

Regarding the average weight a packer says: "The ideal average for our local needs is 170 to 225 pounds alive. We would prefer to buy all our hogs this average if possible. At present this average is selling at a premium all over the country, due to the fact that the trade demands lighter average meats, and if we could be assured of hogs not to exceed 225 pounds, with regular supply weighing from 170 to 200 pounds, we would feel we had gained quite a step in procuring what we wanted in the way of raw material."

MARKET GRADES OF HOGS.

Hogs when sold and quoted in the market papers are usually graded and designated by certain terms, such as prime, rough, etc.

The hogs bought on the Portland market are classified as follows:

Prime Lights. The term prime refers to the degree of finish and maturity shown by the hog. To grade as prime lights hogs must be highly finished and give evidence of being fitted to a high degree of perfection. Prime hogs are those which come up fully to the highest standard of their class. They show to a marked degree their excellence of breeding. It is just here that pure bred market hogs, or at least the use of a pure-bred sire, show to the best effect. They at all times command the top of the market. The range of weights in this class is 170 to 225.

Prime Strong Weights. Have the same characteristics as prime lights except that the weights run from 225 to 250 pounds. They command the same prices as prime lights.

Good to Prime Mixed. A little less in quality and finish than prime. Their weights run from 150 to 250 pounds. In point of price they usually average five to fifteen cents under tops.

Rough Heavy Packing. Heavy hogs are classed as weighing more than 250 pounds. Heavy hogs are decreasing in number from year to year, since the producer realizes that the most money is in raising lighter hogs. This class on this market usually includes old sows, barrows, and stags. Price ranges from 50 cents to $1.00 under tops. Smooth heavies of course command the best prices.

Pigs. Are classed as weighing from 100 to 125 pounds. They are young, as their weight would indicate. They are too small and their condition is usually unfit for curing. They usually bring from 25 cents to $1.00 under the top prices.

Skips. Light weight pigs under 60 to 75 pounds—are really unfit for market purposes and are cut by buyers from $1.50 to $2.00 per hundred under prime lights.

FUNCTIONS OF THE STOCK YARDS.

The business of the Stock Yards consists of receiving, yarding, feeding, watering, weighing and forwarding or reshipping live animals. It neither buys, sells nor slaughters live stock, but simply maintains a place for buyer and seller to meet. The shipper to a central live stock market has the advantage of many competitive buyers.

The records kept by the Stock Yards Company are accessible at any time to any one interested. Daily market reports for the information of shippers are made up from the scale tickets showing prices received. These market reports are published daily by the various newspapers.

THE COMMISSION MAN.

Hogs are usually consigned to one of the commission firms doing business at the Stock Yards. The charges by these firms are small, and compared with the amount of work done by them are exceedingly well worth while. Salesmen for commission houses keep in close touch with the buyers and are in an advantageous position to get all the stock is worth.

NOTES.

NOTES.

THE PORTLAND UNION STOCK YARDS COMPANY have on hand various pamphlets and folders relating to many phases of livestock marketing which they will be glad to send to those interested. Write to them when you expect to market livestock so that you can be properly informed as to market prices prevailing.

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